TESTS: 1982 Honda CX500 Turbo Tomorrowbike, Woodswise Pro-Link XR200R, Kawasaki's Roadracy GPz550

47457

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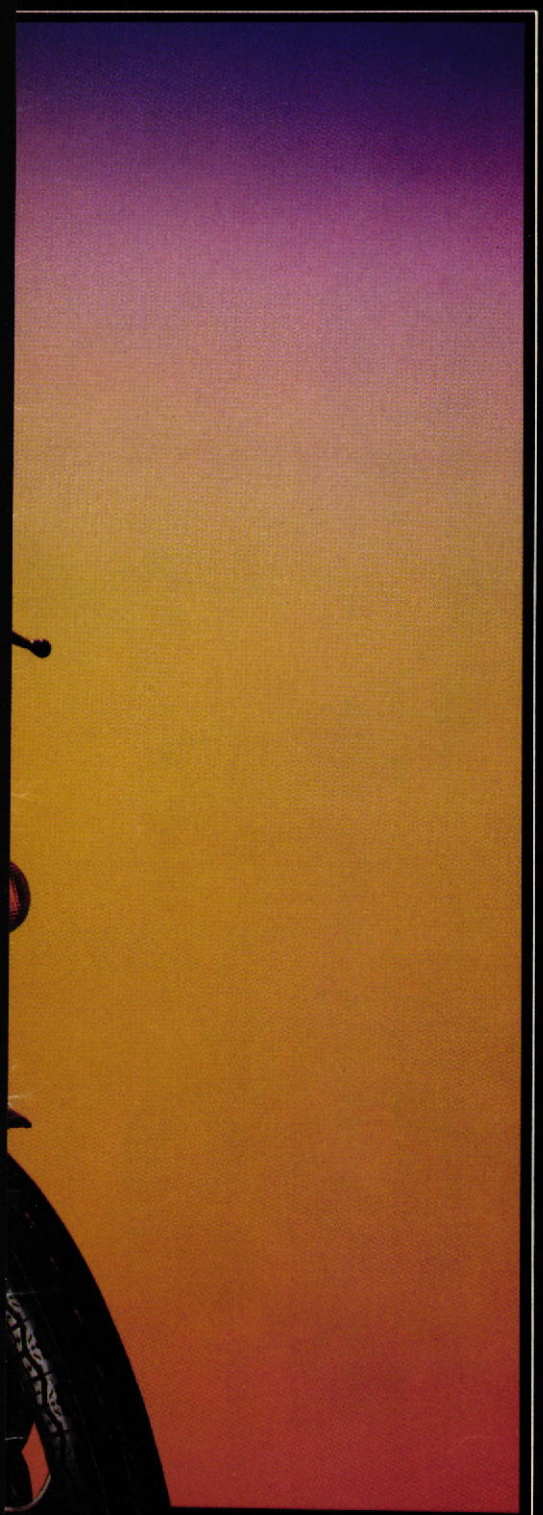

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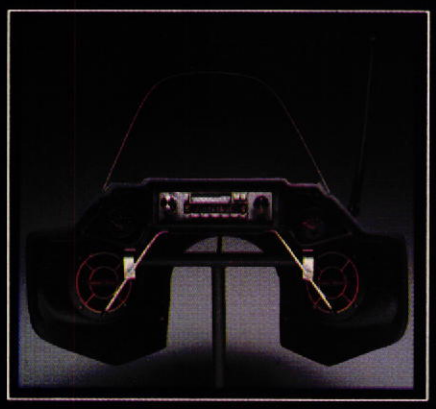

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ON THE COVER:
Motonaut Mark Diotte thumbs first-stage boosters of Honda's CX500 Turbo while ace lensman Chris Eastman burns film from the passenger compartment of NASA's space shuttle.

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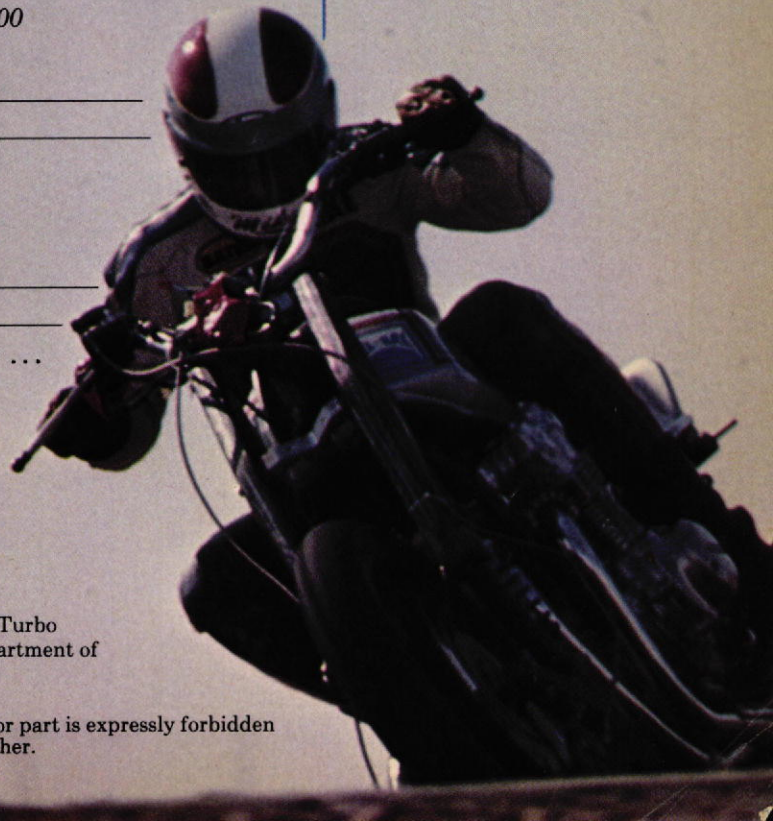

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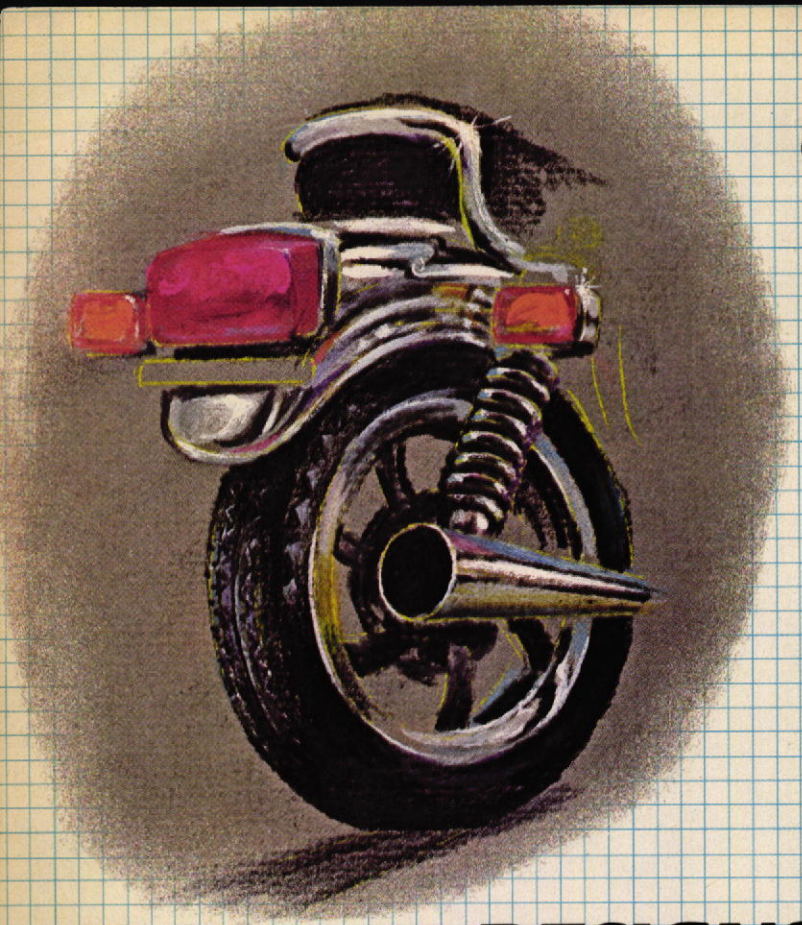

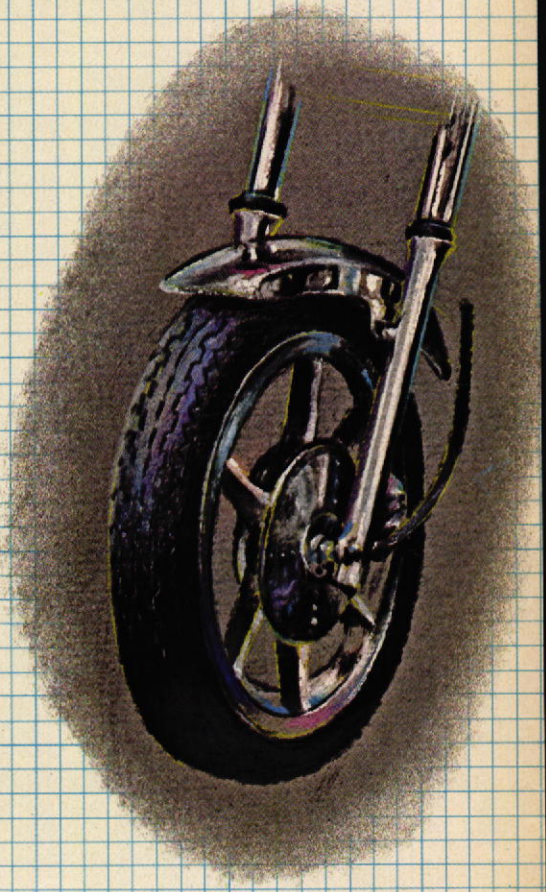

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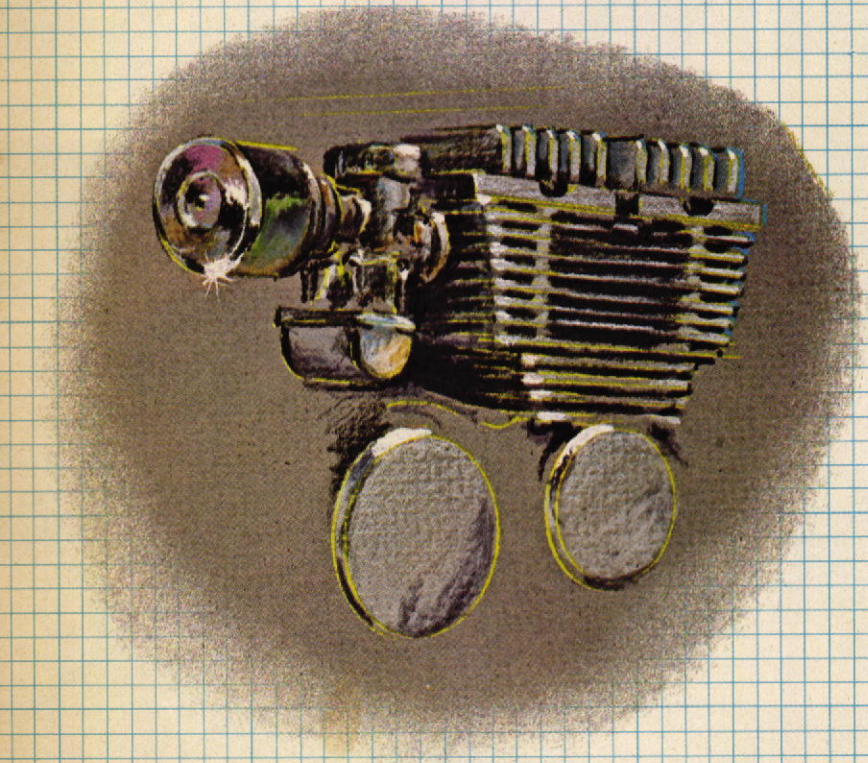

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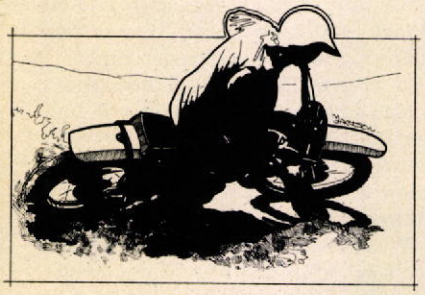

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CYCLE GUIDE'S CYCLE GUIDE

OFF-ROAD

MAKE & MODEL	ISSUE	ENGINE TYPE	WHEEL TRAVEL, IN. FRONT/REAR	WEIGHT, LBS	HORSEPOWER @ RPM*		GEARS
Can-Am 250 MX-5	Jan. '79	Two-str.	10.8/10.0	218	32.1	8500	5
Can-Am 250 Qualifier III	Feb. '80	Two-str.	9.7/9.8	230	25.2	8000	6
Cam-Am 400 MX-6	June '80	Two-str.	11.5/10.8	233	38.3	6500	5
Honda CR125R	April '81	Two-str.	10.6/11.5	213	NA	NA	6
Honda CR250R	May '80	Two-str.	11.8/11.0	222	27.5	7000	5
Honda CR450R	Feb. '81	Two-str.	11.0/12.5	236	NA	NA	4
Honda XR185	March '79	Four-str.	8.0/7.7	221	12.8	10000	6
Honda XR500	May '79	Four-str.	8.5/8.6	273	25.8	6500	5
Husqvarna 125CR-'80	Nov. '79	Two-str.	11.8/11.8	214	18.8	11000	6
Husqvarna 250WR	July '81	Two-str.	9.5/10.3	248	20.9	7500	6
Husqvarna 420AXC	Oct. '80	Two-str.	11.5/11.9	239	NA	NA	4
Husqvarna 430CR	March '81	two-str.	11.9/11.3	239	33.3	6500	6
Kawasaki KDX250	July '81	Two-str.	9.9/11.0	248	24.3	7000	6
Kawasaki KDX175	Dec. '80	Two-str.	9.6/9.8	222	15.3	8500	6
Kawasaki KX125 A7	Jan. '81	Two-str.	10.4/11.3	207	20.9	12000	6
Kawasaki KX250	Sept. '80	Two-str.	11.3/11.2	233	26.8	8000	5
Kawasaki KX420	July '80	Two-str.	11.0/11.3	250	34.0	7000	5
Maico 400 MI	April '80	Two-str.	12.3/12.0	233	35.5	7000	5
Maico 450 MI	April '80	Two-str.	12.3/12.0	236	37.0	7000	5
Montesa Cappra 414 VE	Oct. '79	Two-str.	10.9/10.7	236	28.5	6500	4
Suzuki PE400	Nov. '80	Two-str.	11.3/11.3	250	30.9	7000	5
Suzuki RM125X	June '81	Two-str.	10.8/11.7	205	20.7	11500	6
Suzuki RM250N	May '79	Two-str.	11.2/11.8	218	27.1	8000	5
Suzuki RM465X	Aug. '81	Two-str.	10.4/10.8	234	36.0	7000	5
Yamaha Pro-Tec 600	Nov. '79	Four-str.	10.5/10.1	262	46.2	6500	5
Yamaha IT250G	Dec. '79	Two-str.	9.8/9.8	244	27.7	8000	6
Yamaha TT250G	Aug. '80	Four-str.	8.8/7.5	242	17.7	8000	5
Yamaha YZ250G	March '80	Two-str.	11.2/11.6	217	29.6	8000	6
Yamaha IT465	May '81	Two-str.	10.0/11.4	247	38.1	6500	5
Yamaha YZ465H	Aug. '81	Two-str.	11.0/12.4	235	39.8	7000	5

*Horsepower shown is taken at the rear wheel and does not account for transmission losses between the engine and rear wheel. These results may differ from manufacturer's claims or from results obtained using a different dynamometer.

STREET

MAKE & MODEL	ISSUE	ENGINE TYPE*	QUARTER-MILE, SEC./MPH	TOP SPEED, MPH	WEIGHT, LBS	FUEL CONSUMPTION, MPG	STOPPING DISTANCE FROM 60 MPH, FT.
BMW R65	March '81	2C/G	14.16/92.1	110	423	45-50	133
BMW R100RS	May '81	2C/G	13.48/98.4	127	492	34-52	145
Ducati Darmah	Sept. '78	90-deg. 2D/F	13.41/97.5	118	487	25-40	120
Dunstall-Suzuki GS1000 CS	July '79	4A/F	11.32/117.0	154	488	37-54	124
H-D CLE Sidecar	Sept. '79	45-deg. 2D/F	17.60/69.3	91	1036	25-35	181
H-D Tour Glide	Sept. '80	45-deg. 2D/F	15.58/83.9	108	785	35-44	161
Honda CB400T Hawk	March '80	2A/F	14.37/88.6	100	391	51-65	139
Honda GL500 Interstate	Aug. '81	80-deg. 2E/G	14.88/86.4	96	517	39-53	140
Honda CB650 Custom	Dec. '79	4A/F	13.10/99.8	113	447	44-52	131
Honda CB750F	June '81	4A/F	12.40/108.3	118	526	38-53	126
Honda CB750C	Nov. '80	4A/F	12.68/105.3	128	530	39-46	131
Honda CB900F	July '81	4A/F	12.21/111.1	141	547	41-47	130
Honda GL1100 Interstate	Aug. '81	4C/G	13.37/99.7	130	691	39-44	148
Honda CBX	May '81	6A/F	12.01/113.9	136	646	23-40	130
Kawasaki KZ440D	Feb. '81	2A/F	14.59/89.1	107	383	56-64	135
Kawasaki KZ550	Sept. '80	4A/F	13.45/97.1	103	426	37-51	150
Kawasaki KZ750	June '81	4A/F	12.43/108.2	128	471	38-60	128
Kawasaki KZ1000J	Feb. '81	4A/F	11.62/116.3	130	521	30-51	135
Kawasaki KZ1100	April '81	4A/F	11.62/117.6	140	559	38-44	NA
Kawasaki GPz1100	July '81	4A/F	11.44/118.6	133	538	38-47	158
Kawasaki KZ1300A GT	Sept. '80	6A/G	12.71/107.4	135	730	31-45	146
Laverda 1200 Jota	Dec. '78	3A/F	12.54/105.0	121	518	29-37	145
R.C. Turbo CB750F	Oct. '80	4A/F	11.99/113.8	NA	523	27-39	135
Suzuki GS450 ST	May '80	2A/F	14.09/92.5	100	397	55-57	127
Suzuki GS750EX	June '81	4A/F	12.26/108.6	128	525	44-52	130
Suzuki GS1000E	Aug. '80	4A/F	11.98/113.9	136	528	32-50	137
Suzuki GS1000G	Aug. '80	4A/G	12.34/110.8	139	564	30-51	141
Suzuki GS1100EX	July '81	4A/F	11.36/118.6	141	535	43-48	123
Triumph Bonneville Special	July '79	2A/F	13.94/96.2	110	411	45-55	175
Yamaha RD350LC	Dec. '80	Two-str. 2/AF	13.23/101.0	113	328	NA	126
Yamaha XJ550RH Seca	May '81	4A/G	12.99/101.7	121	418	44-55	119
Yamaha XJ650 Maxim I	June '80	4A/G	12.60/107.4	120	453	40-54	128
Yamaha XJ650	Nov. '80	4A/G	13.19/102.4	125	476	43-44	NA
Yamaha Seca 750	June '81	4A/F	12.26/108.0	128	495	44-56	134
Yamaha Virago	March '81	75-deg.2D/G	13.28/99.8	105	481	47-51	132
Yamaha XS850LG	Feb. '80	3A/G	13.10/101.7	116	548	42-55	144
Yamaha XS1100LH	Jan. '81	4A/G	11.99/113.5	130	562	41-46	133

*A-Transverse Vertical, B-Vertical, (single-cylinder only), C-Horizontally Opposed, D-Tandem Vee, E-Transverse Vee, /F-Chain Final Drive, /G-Shaft Final Drive, /H-Belt Final Drive

Editorial

Credentials

Is this guy really your agent?

• Sad to say, but not everyone belongs here. The bitter truth is that it's just not in the cards for everyone who wants to be a motorcyclist to be one. It's a matter of credentials and, bluntly, not everyone has the right ones at hand. Those credentials can't be bought or traded and, in most cases, can't be earned. They aren't something you can hang on the wall or carry in your pocket—not even a permission slip to use the highways from the Department of Motor Vehicles—but nonetheless, they're just as real as if they *had* been set down on paper. And if you know what to look for, they're just as easy to read.

For the sake of argument, imagine that you've just been called on to help the friend of a friend with a few choice words before the purchase of his first motorcycle. No matter whether you've been riding a month or a lifetime, you're an expert in the eyes of your non-riding friends; so this scenario probably seems about as familiar as adjusting your helmet strap. This friend of a friend arrives in his ratcar with a screeching of tires, bounds up and blurts out the whole picture in one broad-brush swipe: "How torqued canya be and still drive a bike?"

The giveaway is stone dead. Through no real fault of his own, this friend of a friend—an acquaintance, really, now that you think about it—will never be a motorcyclist. You know it down to your socks. Perhaps one day, his credit union willing, he will acquire a motorcycle, but the first glance into his porcine eyes convinces you that even a device as special as a good motorcycle will never be able to reshuffle his personal priorities into some semblance of The Right Stuff.

Naturally, most times the real-life confrontation will be several shades less vivid than this caricature. You probably won't have to deal with flecks of foam at the side of the mouth, uncontrolled clumsiness or a wanton desire to terrorize small towns from the saddle of a motorcycle.

But even if they aren't obvious, there *are* signs. Someone dancing on the thin bubble of forfeiting a driver's license as a result of a history of reckless driving is probably going to be less successful on two wheels than four. In truth, far less, since motorcycles require much greater levels of skill to manage than do cars, and the potential of instant performance gratification exists literally at the flick of a wrist on even small bikes. And the would-be biker

who allows his machines to fall into decay is also somewhat doubtful, since the failure of some part of a motorcycle often has instant—and lasting—consequences. Likewise, someone with obvious coordination problems or a profound lack of equilibrium will have an almost impossible time making the transition from a car to a motorcycle.

An even more unlikely candidate, however, is the potential rider who has an equilibrium problem of another sort. Short-fused types who are likely to fly off the handle in traffic at some real or imagined slight—or who use vehicles to express anger at something utterly unrelated to the surroundings—are likely to fly off the road as well. And they don't always go alone. Further, a motorcyclist capable of using a bike as a weapon of self-expression shows some seriously unbalanced judgment. After all, left to its own devices a motorcycle will always seek its natural condition—anything but upright. And any game of crinkle-fender involving a motorcycle is a guaranteed losing proposition for both bike and rider. Nothing but a fool's game.

But lest you think that this somewhat obvious presentation has any altruistic overtones lurking between the lines whatsoever, allow me to assure you that it doesn't. I'm talking pure selfish interests here. Yours and mine. I don't want you to send some ill-suited would-be biker in another direction to save him the pain and indignity of skinned knees, broken motorcycles or worse. I'm asking you to think of yourself. I want you to see how much this interaction with the undocumented aliens of Moto-land is going to cost you. Because rest assured, sooner or later it will.

The method of payment is intricate, almost labyrinthine, but it is as sure as the sun. As a motorcyclist, you're a member of a special group, and—regardless of what the driver said after turning left in front of you at the intersection—highly visible when you're on your bike. Like it or not, you're not just a motorcyclist, you're Motorcycling. What you do, how you handle yourself and your bike, affects how drivers and the world at large thinks of all motorcyclists. And what those other bikers do affects how you're perceived.

With this intricate balance in mind—and fully aware of the immediate consequences of your own actions as well—you take to the highway, trail or wherever and ride your motorcycle appropriately. Which doesn't, by the way, have to mean riding like somebody's maiden aunt.

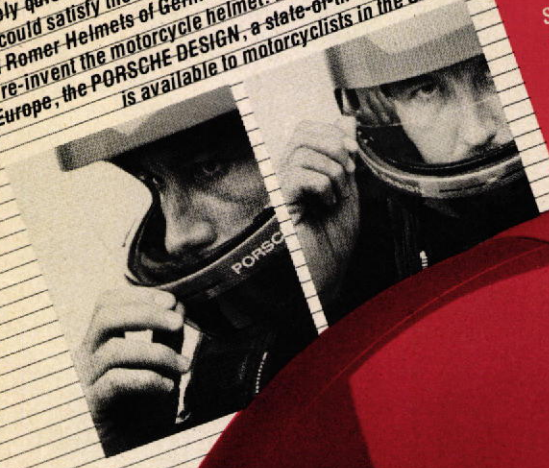
But this really isn't one of those pleas to dress neatly, keep your motorcycle shiny and quiet and to always wear a smile because you are an ambassador . . . well, you know the rest. No, this is, as I said, an entirely selfish proposition.

What I'm suggesting is that launching someone off on the rites of passage into motorcycling is a task that carries with it a certain responsibility. It involves a gatekeeping function as well. Both for the good of the people who just aren't going to make it as riders and for you as well. And me. Okay, it would be wrong to paint an unrealistically grim picture of motorcycling for anyone. But for the sake of those would-be riders who are clearly unsuited to the task, it would be far kinder to let them know the problems that they're going to face. And maybe go so far as to offer an opinion that they'd be better off staying away from bikes.

When you're asked to give the "motorcycle spiel" to someone considering signing up for two wheels, don't just launch off on the wonders of it all. Think, before you wax rhapsodic on the freedom, the wind in your face and all that. Think how that rhapsody is going to play in a year or so when some driver takes out on you the aggression that your rapt student built up in him by some foolish move in traffic. That's serious counsel you're offering, so take it seriously. Take a good, hard look at your audience and ask yourself if you'd want that person as a riding companion. If the answer is no, or even if you have serious doubts, maybe you don't want them representing you, either. —*Larry Works*

NOW THERE'S ONE HELMET.

A motorcycle helmet, besides offering protection, should be light in weight, comfortable, aerodynamically designed, extremely quiet and attractive. There was no single helmet that could satisfy these exacting requirements. PORSCHE DESIGN and Romer Helmets of Germany launched a joint effort to literally re-invent the motorcycle helmet. After years of testing and use in Europe, the PORSCHE DESIGN, a state-of-the-art helmet is available to motorcyclists in the U.S.A.



THE ONE FROM PORSCHE DESIGN.

EXCLUSIVE INTERNAL FACE SHIELD PORSCHE DESIGN engineered the face shield of the CP-3 to function *inside* the structure of the helmet, not outside. Result; you're comfortably sealed off from buffeting wind and fatiguing noise. Recent tests have shown that high decibel noise is not only extremely fatiguing, but it tends to distort the *important* sounds, those traffic "noises" you should be able to hear while riding. The CP-3 helmet allows vital sounds in, keeps wind noise out! And its 7 position, simple, positive indexing face shield opens easily with either hand! The replaceable face shield is three times thicker than conventional shields, super strong and chemically treated for scratch resistance. The optics are unbelievably clear and extra wide for unequalled peripheral vision. With the face shield open to any position, the helmet retains its turbulence-free feature, an exclusive CP-3 helmet design advantage.

STATE-OF-THE-ART CONSTRUCTION The CP-3 features high-pressure, injection-molded manufacturing techniques for strength and light weight. The impact absorbing, high density liner is covered with foam backed velour for fit and comfort. The chin strap is covered with soft leather. There are internal provisions for sun or eyeglass wearers to insert the temple pieces with ease. In addition, there are internal provisions for stability, fit and added weather protection. The helmet is available in sizes from extra-small through extra-large. Of course, the CP-3 helmet meets D.O.T. and most European required specifications.

UNIQUE VENTING SYSTEM (PATENTED) The PORSCHE DESIGN helmet has a built-in vent system that opens up or closes off completely. At the touch of a simple control, fresh air circulates inside the visor and vents out the top of the helmet, reducing fogging or adding interior ventilation.

COLORS Due to the unique design of the interchangeable face shield visor, the new CP-3 helmet is available in red, black or white; one or two color combinations.

A WORD ABOUT ROMER The CP-3 helmet was designed by PORSCHE DESIGN and manufactured by Hans Romer company, a German firm with over a century of manufacturing experience. Their customers have included BMW, the German Police and NATO, to list just a few. Romer is the most respected safety equipment company in Europe.

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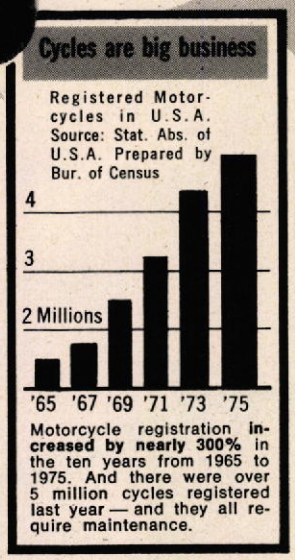
Cycles are big business
Registered Motorcycles in U.S.A. Source: Stat. Abs. of U.S.A. Prepared by Bur. of Census
4
3
2 Millions
'65 '67 '69 '71 '73 '75

Motorcycle registration increased by nearly 300% in the ten years from 1965 to 1975. And there were over 5 million cycles registered last year — and they all require maintenance.

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Has your bike ever been out of action waiting for needed repairs? Some shops don't always have enough mechanics on hand to take care of everyone as fast as they would like. Opportunities vary from place to place, but the sale of hundreds of thousands of motorcycles a year in the U.S. insures a continuing need for motorcycle maintenance.

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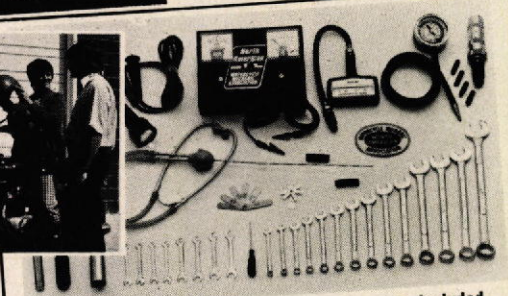

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Your future as a motorcycle mechanic is in your own hands. You can decide for yourself whether you want to work for someone else or get into your own cycle repair business. Start in your spare time repairing cycles for friends and neighbors — or get a job with a motorcycle shop! After you've been a working mechanic, you can decide whether you want to start your own motorcycle repair business.

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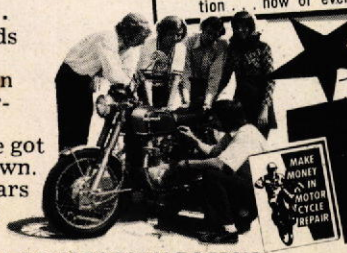

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Thompson at Large

The Dumb List

Caution: Stylists at work.

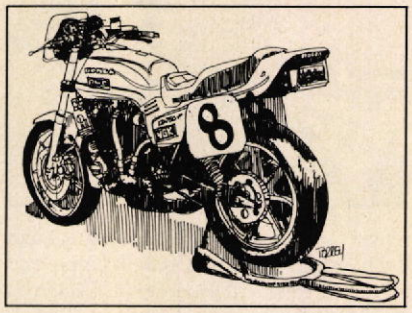
• Now that the Japanese have rediscovered the value of lightness in their street-bike chassis, and now that they've bolted that newfound lightness up to suspension, brakes and tires with as much horsepower as their engines have always displayed, our street bikes are pretty nice devices. When I compare this year's crop with the harvest we had a decade (or even two) ago, it's plenty clear that things have gotten better here in Moto-Land; Science, it seems, *has* marched on.

But dumb persists. There are still things that find their way into our dream bikes that drive me absolutely nuts. I'm not speaking of the Big Issues (two-stroke vs. four, four-cylinder vs. three), but the little things. The things that seem insignificant on the showroom floor but that loom ever larger as they eat into your stomach lining and/or wallet.

I sat down with a big cup of coffee, a yellow legal pad and a bank of patience with which to catalog these items, thinking vaguely that maybe some bike line wouldn't show up on the Dumb List. I'm not a marque freak of any description, but I guess that I figured maybe some manufacturer wouldn't have done it with the same regularity as another. Wasn't so, of course. Today's bikes are good, but not one is perfect.

Take seats. Now, a decade ago, they were thinly padded, almost jokes. Triumph had tuck-and-roll, everybody had straps where your fanny met the hide of the Naugha, and in general it was understood that a large part of the bravery of a long-distance rider was the stoicism he needed to endure his seat. However, in one large measure, almost everybody's bike seat was better then than today: they flipped up on hinges. They didn't, as the seats on today's literbikes do, clip on via complex levers and pins and fasteners.

This take-it-off vs. flip-it-up syndrome seems to have struck all the Japanese manufacturers at once. I've heard lots of speculation as to why it's going on, but my favorite theory is that the nonriding stylists have done it to us again. Here's how: The guy with the job of getting that Lowrider look onto a typical tall-engined four-cylinder literbike can't make the frame guy drop the rear subframe rails, so he steps the seat as low in front as it'll go. He uses dual-density foam to make up for the loss of thickness, then he wraps a grab bar around the tailpiece of the seat itself.



Result: Forget the flip-up seat. Because he had to sacrifice something to get The Look, he sacrificed the ability to flip up, which probably means nothing to a guy who hasn't had to wrestle with a pull-off seat on a pitch black night in the middle of Nowhere, Wyoming to fix whatever is wrong deep in the electrical guts of that wonderful literbike.

About that grabrail he stuck back there: It might be pretty, but with few exceptions the things have one important failing—still. They make it impossible to hook on bungee cords without the tips sliding together and making the integrity of the tie-down very dubious indeed. On various high-zoot literbikes, in fact, this problem is further complicated by the fragile-looking bodywork under the seat; hook a bungee under that thin bit of ABS or fiberglass and you feel like you're just asking for trouble. You're left with the lip of the seat itself. But because it's a lift-off seat, the pull of the bungee moves it just enough to be a little unsettling. It's hard not to draw the conclusion that the fellows who gave us these problems never had to live with them themselves. In fact, standing there with a wad of bungees in your hand and a pack to tie down, it's easy to wonder if the stylists ever got *on* a motorcycle, let alone rode one.

Contemplating the Blister-Pack Tool Kit deepens your suspicions. (Well, it certainly deepens mine, anyway.) You already know that we at *CG* think that, with few exceptions, the manufacturers provide tool kits absurdly out of line with the demands of the machine they go with. But it doesn't stop there; not content with grudgingly giving you a lousy toolkit, they then seem to figure out the worst possible place to locate it. A classic example is the Yamaha Virago, otherwise a wonderful machine, but one which suffers some severe penalties of broad-brush styling. In its case, the toolkit is found under a plastichrome cover below the leftside side cover. Like its big brother, the XS11, the Virago seems to disdain the whole matter of tools; the Eleven's tools have to be packed with surgical care into the tiny slot allocated for them, and something like that has to go into the Virago, too. Did the stylist have more important matters to attend to that week?

And was one of those matters the now-ubiquitous padded dashboard? Seems like it, since these egregious absurdities have sprouted on just about everything in sight in the last year or so. They seem to have no real function whatsoever, except to restate the name of the manufacturer one more time, in soft vinyl. And, of course, they also make adjusting the handlebar an infuriating task, since you have to figure out how to get the fake dash off before you gain access to the bar clamps (and Suzuki, for instance, secures the little rubber joy with *four* screws). I figure the stylist was abetted or even directed to build this dumbness into our lives by the product-liability lawyers, who might imagine that padding over those nasty clamps will save some lawsuits.

Well, *I* might have contemplated legal action because of dumb things on bikes. But it wasn't over anything related to falling off. It was over this kind of stupid design. Take air forks whose air valves aim straight up, for instance, making it impossible to get your standard gas-station airline to them. Or center- and sidestands whose location has been determined by the sweep and angle of the muffler, which in turn has been styled to look Just Right, but which then puts the stands in the Just Wrong configuration for easy, secure use.

Dumb.

I know that the current emphasis on styling is an easy target, but I'm not against styling *per se*. It's simply dumb styling that gripes me; styling that leads to problems for us on the road. I know, too, that often the actual stylist doesn't have the power to help us; he might be following a lawyer's rule or an accountant's budget. But as the costs of our rides go up and up, and as the basic machinery gets better and better, these styling-driven annoyances are harder and harder to take. "Form follows function" ought especially to be the rule on a motorcycle, where there isn't much form but a lot of function. Leave the plastichrome to Detroit.

—Steve Thompson

Techspeak:

Taking it to the limit

Avoiding a death on a back road.

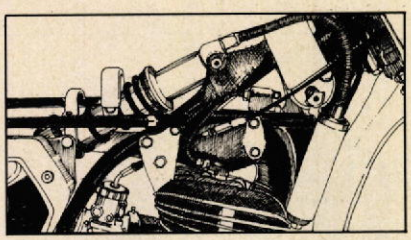
• A quiet back road miles from home is no place to find that your motorcycle is dead. But that is just where many riders hear that first mechanical clank, smell the first acrid blue smoke, or simply languish in the shattering silence of mechanical inactivity. Their motor has just gone one revolution beyond its limit and there is nothing that can be done. Nothing except call Triple A, that is.

There is no reason that you have to go through all that anguish and, if you act on the information in your owner's manual carefully you probably won't. Every manufacturer gives you a warning of possible mechanical mayhem in a small section at the back of the book. It's hidden between the exploded drawings and the wiring diagram, most likely, a long list of seemingly meaningless numbers. But those Service Limits ought to be up front, out in a prominent place where they might save you time, money and a ride home in a tow truck.

Service limits, as the name implies, are the manufacturer's maximum wear predictions for the useful life of many of the moving parts in your motorcycle. They are the result of hours of testing to determine the point beyond which worn parts might fail in normal service. And while most riders will be reluctant to tear into their engines, micrometers in hand, to measure individual parts, service limits *do* provide a guide for preventive maintenance. There are no guarantees, of course, but if you use the manufacturer's recommended service limits as a guidebook, observing them as carefully as you do the red line on your tachometer and the oil level on the dipstick, you might never need Triple A's phone number again.

Probably the only service limit most riders observe—even though it's stretching the definition of service limit a bit—is the regular oil change. Oil, just like the metal parts it covers, wears out in service. Since it's difficult to measure when an oil's effective service life is ended, the manufacturers give recommended maintenance intervals and mileage guides to tell when it's time for a change.

After umpteen-thousand miles your oil's constituents no longer offer the protection they once did. Shiny traces in the oil are a sure sign that somewhere in your motor a moving part is wearing toward its own service limit. From the very first revolution outside the dealer's showroom



those moving parts are rubbing against each other, shedding small chips and slivers of steel and aluminum. While you really can't measure that wear with an odometer, you *can* use a feeler gauge, calipers and a micrometer.

Each manufacturer usually lists all the parts of your motor that can be measured. On the service data pages you will find what is referred to as the standard sizing for the part, usually two figures that reflect the extremes in manufacturing tolerances. And, usually, to the right of the standard column will be the service limit column with just one number, a figure that must not be exceeded without jeopardizing the life of that part.

The first service limit that most riders need to worry about is piston ring end gap. It can be measured inside the bore to determine the amount of wear, and also in its free state to measure how much of its natural spring properties it has lost. The piston also wears rapidly inside the bore, and a feeler gauge between the skirt and cylinder wall will tell whether the clearance is too great. And if you can't determine whether it's the piston or cylinder that needs replacing, the piston and bore diameters can be taken with micrometers for comparison to the manufacturer's service limits.

While you have the barrel off the bike you can also check the crank and rod dimensions, because if anything is going to leave you stranded miles from home it will likely be the death of one of these parts. The inside diameters of the small- and big-end eyes are particularly critical, as is the outside diameter of the wrist pin. And the amount of con-rod deflection and crankshaft runout should be measured and compared with the factory service limit.

If a four-stroke's crank is in good order it will probably be a valve failure that causes that expensive mechanical mishap. Valves not only have to be adjusted so that the clearances between their stems and rockers are correct, a check must also be made to assure that their dimensions have not exceeded the service limit as they hammer against the cylinder head. A common area for problems is between the valve's stem and the guide, but the valve head thickness and seat width also have service limits to be observed. Even the camshaft itself has service limits for its height and width, as well as bearing sizes.

Sometimes parts don't have to wear to exceed their service limits, and clutch plates are a good example. They can warp under the strain of transmitting power, and when they warp too much they need replacing. But they also wear away slowly with friction, and therefore actually have two service limits to consider.

You won't need the accuracy of a micrometer to know when gearlash has exceeded the service limit; you should almost be able to feel and hear it. The gear dogs, engaging slots and gear teeth wear away to a point where noise and driveline snatch is increased. And that is also true of the final drive chain, which, like everything else on your bike, wears out. There are all kinds of ways to determine when the chain is worn beyond use, but the manufacturers normally give a service limit length for 20 links of chain. The owner's manual will also give a similar piece of information about the cam chain, because, while a chain tensioner might keep it quiet, the cam chain, like every other part of your motorcycle, is still wearing away.

Sometimes the mechanical aging process does not even threaten to damage your motorcycle, it just makes it perform poorly. A suspension spring shows that sort of wear. The springs slowly lose their resilience as the miles hammer them constantly, but they never do more than affect the handling. But springs can cause damage if they fail to push a valve closed, and then they can ruin performance or even damage the valve that floats uncontrollably at high rpm.

Probably the most important service limit of all is not established by the manufacturer. It should be left to common sense, but tire wear—through minimum legal tread depth—is controlled by the government for everyone's safety.

Observing a motorcycle's service limits poses its own problems. But since motorcycles don't come with parts replacement requirements determined by hours of operation—as the FAA requires of airplanes—a micrometer and a list of service limits is the best way to avoid a mechanical death in the family.

—David Dewhurst

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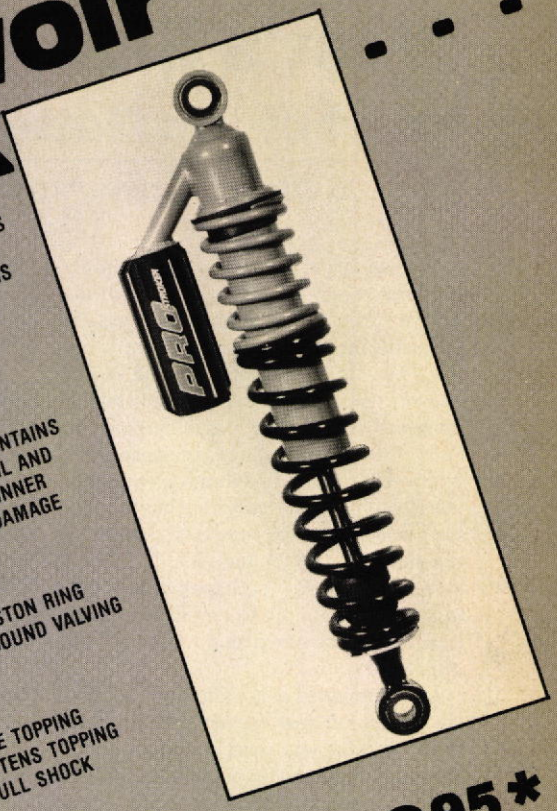

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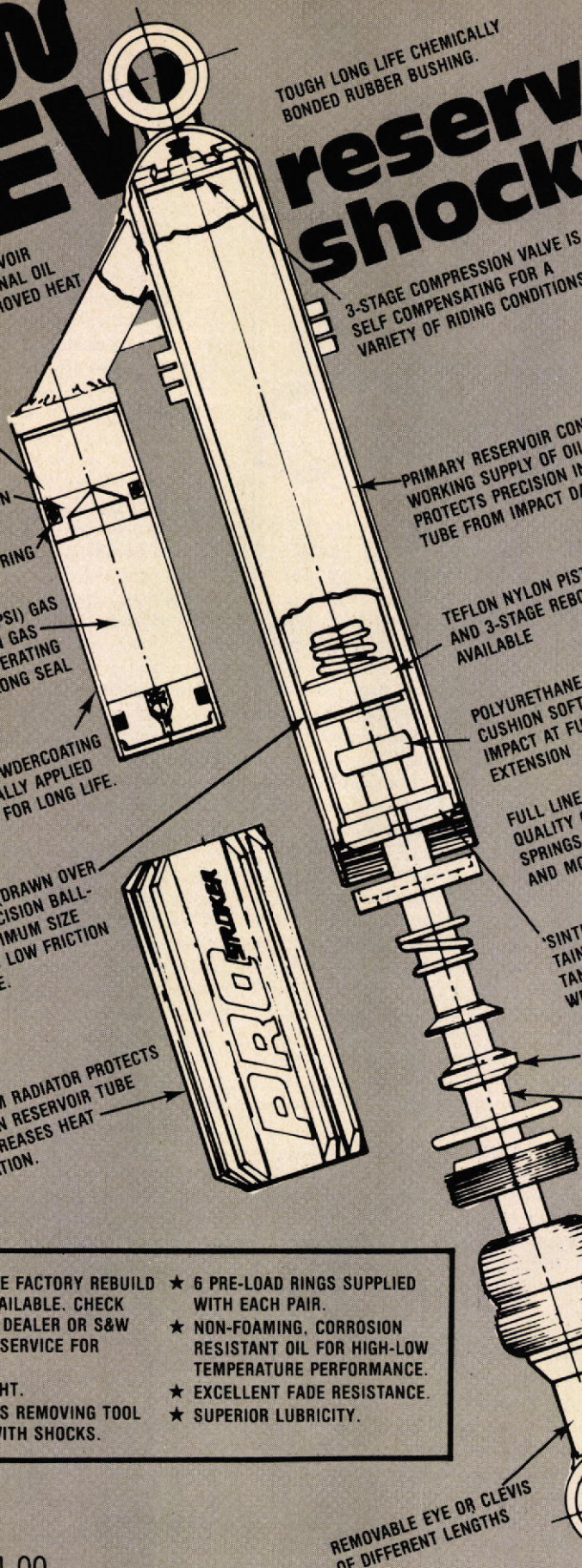

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West's Side

Heart of the Matter

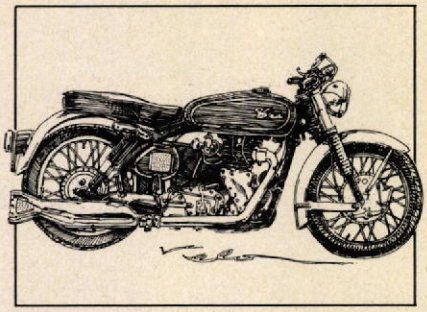
And you probably never thought of your garage as a medicine chest.

• You can forget to notice—it can simply slip your mind—that *this* is the real reason you own a motorcycle. Not just for "transportation," not just to profile for Suzy Two-Scoops down at the A&W, not as a surrogate appendage for some real or imagined inadequacy (fat older men in Olds diesels particularly love that one). No, even if reasons like those *do* enter into your owning a motorcycle, they're only secondary. The real reason, the heart of the matter, is much simpler. It doesn't even need a word—perhaps the best way to get at it is simply to describe an emotion. Stick with me through this, you just might recognize it.

I was reminded of it again way back last spring, and I wasn't even riding at the time. My bike was nearby, though, a foot and a half from the tip of my boot, and six feet in the other direction was a fast-running country stream, the water chuckling down through the rocks in surges and swirls under a blinding blue sky. The new spring foliage around me had that wonderful soft greenness that is gone by the first of June, and the air was so bright and clean that you wanted to rub it into your skin like a lotion. I'd been riding for three hours, headed out of the clutter of New York City and searching for peace, and—no point in denying it—I was feeling lousy. It was one of those days when the world is running on Empty. Everyone I knew had something else to do, someone else to be with, and even if they hadn't—even if they'd all been lined up at my front door—I would've felt lousy just the same. They say those days are normal, but they only feel normal when they're happening to someone else.

Anyway, since the weather was promising—clear and in the mid-seventies—I decided to go for a little ramble. Something "open-ended." That was the point—not to make any plan, not choose a route beforehand, just follow the front wheel and see where it led. A fine plan. I still felt lousy, of course . . . and why shouldn't I, feeling lousy was my mission for the day!

But right from the start, things were going wrong. For instance, my XT500 lit up on the very first kick. For instance, traffic was light and polite going up First Avenue. For instance, the cars on East River Drive were giving me plenty of leeway, as if they didn't know we were enemies. It was hell out there. I crossed the



George Washington Bridge into Jersey, confident that here at least, I was assured of having a lousy time.

But like a termite grinding through stubborn oak, a new thought kept creeping closer and closer to the front of my brain. The wind on my neck felt sort of good, the XT beneath my haunches obeyed in a pleasant sort of way. Then a jerk in a clapped-out Thunderbird had the audacity to give me a thumbs-up sign as I passed by—Jeeze Crice, don't they know how to flip the bird in Jersey!

Lousy. Disgusting.

Halfway across the state, I turned off the Interstate and headed for back roads. I had no map with me and if all else failed, I'd get myself well and truly lost. The burgs and hamlets I passed through got smaller, the roads got cheesier. And now I was painfully hungry. At last, a physical excuse for suffering.

But there ahead, right in the middle of bloody nowhere, appeared a small, excellent, reasonably-priced Vietnamese restaurant—I swear it—and I grudgingly whoofed a magnificent lunch. Feeling distressingly fine, I returned to my bike and it started on the first kick again. For the first time all day, that seemed forgiveable.

I still had some serious getting-lost to do, though. So thereafter, every time I came to an intersection, I took the illogical turn. The countryside kept getting greener and quieter. I found myself on bumpy roads where I was glad for my XT's generous suspension travel. And the longer I rode, the more forcefully it occurred to me that it was sort of nice out today. Maybe even perfect. Time to time, I'd crack the throttle and the big old one-lunger would tractor ahead beneath me, then I'd slow down for a mile or two and putter, the land gently unfolding around me. Finally, I came to a fork where there could be no doubt—the turn to the left led absolutely *nowhere*.

I turned left.

And after picking my way along this cracked and rutted and pot-holed half-lane road about a mile, I could resist it no longer. I pulled off, hit the kill switch. In the sudden quiet, the creek gurgled happily at me. Bright sunlight flickered through the tall trees on the opposite bank, sprinkling the surface of the water with flecks of gold. The instant I sat down against the tree, I realized I was dog-tired, wonderfully tired. I pulled book, pipe and tobacco-pouch out of my leathers (and realized right away that by bringing these things along, I'd set myself up for this ambush of pleasure way back in the city). I settled back. Smoked, read, dozed. Two hours later, I awoke feeling magnificently content with my lot. If somebody had asked at that moment what the word "lousy" meant, I would have had to think for a moment. And then, like as not, I would've described an infestation by a species of insect especially partial to mammalian body hair. . . .

All that happened over four months ago, yet I've been thinking about it ever since. Because, see, it's the *real* reason I own a motorcycle. Oh sure, the secondary reasons for owning motorcycles are important, too—transportation, companionship with other riders, the sheer fun of two-wheeling. But underneath them all is this other business, the heart of the matter. I've thought about it again and again, and when I've temporarily forgotten about it, it comes rushing back again the minute I take a short ride. When all other ways seem to fail, riding a motorcycle is one dependable, constant, well-nigh irresistible way to remind myself of how it feels to be *at liberty*. Just sitting on the saddle and blipping the throttle is a start. And sometimes, depending on how stubbornly devoted I am to feeling lousy, it might take a ride around the block—or an entire afternoon in North Jersey. But one way or another, however long it takes, riding eventually forces me to see again that, yes, in this life *I am at liberty*. I can even choose my *feelings!* And if I make a dumb choice, if I choose to spend a day feeling lousy, that's simply a day wasted. Because, see, I have the antidote, the Miracle Drug, and it's parked in a basement garage around the corner—I only have to choose to use it. In fact, if I'm feeling *really* lousy, it might even take pity and start on the first kick. . . . —*Ted West*

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GUIDE LINES

Cycle Guide's Monthly Chronicle of Scoops, Tips, Rumors and Hard Facts

BY LARRY WORKS

COMING SOON

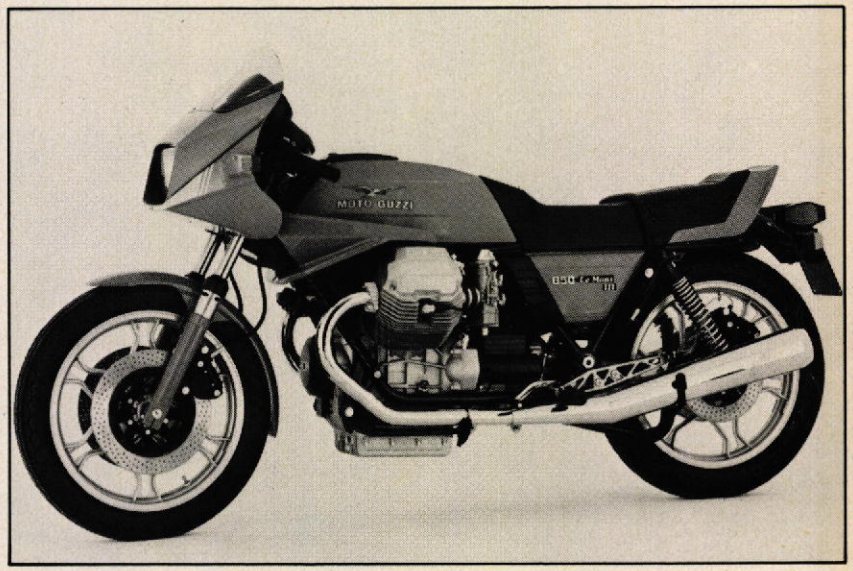
• You might think that the motorcycle industry stands still while it waits for the announcements of the Japanese new-model lineups. It doesn't, not for a moment. So while you're passing the time wondering what new models will **erupt** from Japan this year, give a thought to what marvels find their way to the marketplace from other points of origin. For instance, if your inclination is to superbikes, don't hold your breath waiting to see if the rumors for new 750s pan out. Look to what's already available, to the Moto Guzzi 850 **Le Mans III,** for example.

This 844cc shaftie feeds its vee-twin cylinders through 36mm carbs replete with accelerator pumps. Five speeds take the claimed 78 horsepower and turn it into an equally claimed top speed in excess of **130 mph.** Triple discs with Guzzi's integral braking system haul down the 454-pound Le Mans, while V-rated tires make the only regular contact with the pavement.

To bring the Le Mans III up to 1982 spec a bit of juggling took place. Underneath the new styling job, the Le Mans got more free-flowing inlet tracts and new valve timing, which netted a three-horsepower engine **performance** boost. A longer swingarm was also added, and the suspension was also upgraded to include air-spring units with balance tubes at each end.

• Or, if superbikes are not your interest, if riding hard is simply too much effort, try the OSSA **Urbe** on for size. The five-speed Urbe is no road-burner, certainly, but its 250cc two-stroke single engine still pumps out in excess of 20 horsepower at 6700 rpm, generating more than adequate speed for commuter tasks. The Urbe's distinctive look is more than simply style, it is **high-level** commuter function as well. The fiberglass bodywork includes built-in saddlebags, an integral rack and passenger running boards.

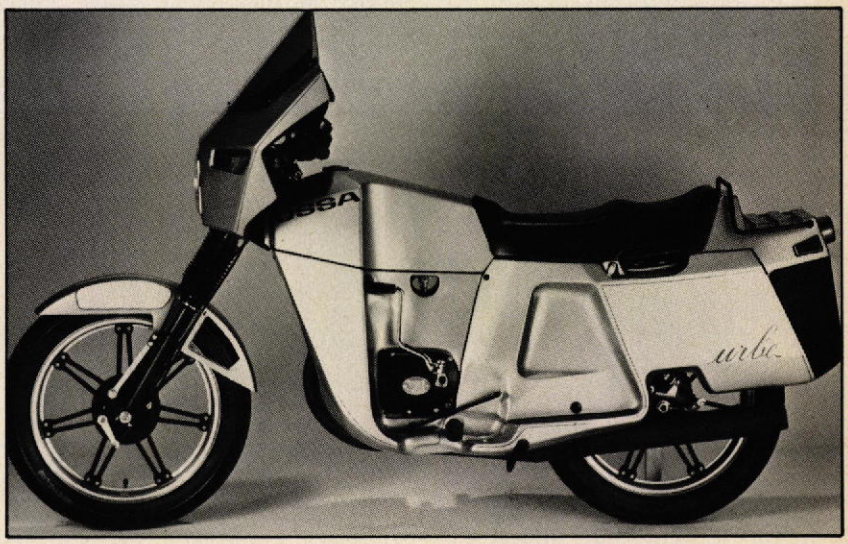
• But maybe speed is what you're after, after all. Or maybe speed with a heavy dose of cafe. If so, perhaps the news that Paul **Dunstall** has turned his attention to the GS1100 will wake you up. You know, that slug of a GS1100 in your garage will probably only turn 135 mph or so, and the new Dunstall GS1100CSC will run 163 mph—and **10.9-second** quarters, to boot. To get a stock GS1100 to those lofty levels of claimed performance, the CSC has a pair of Dunstall four-into-two exhausts added, as well as high-compression pistons, high-lift cams and stronger valve springs. And then, the the head is ported and polished. To complete the package, a Dunstall dolphin fairing, restyled seat, rearsets and low bars go into place, as does a new front fender. The whole CSC package will set you back more than $2200, but you'll also have a claimed **140 horsepower** at the crank. And that ought to hold you for a while.



PHOTOGRAPHY @ 1981 DOUG JACKSON

Racy lines, shaft drive and air-spring suspension mark Moto Guzzi's Le Mans III

A 1982 alternative to the UJM superbike.



PHOTOGRAPHY @ 1981 DOUG JACKSON

OSSA's new 250cc Urbe offers stowage for your carry-on luggage

Call it the rush-hour rocket.

• But if it doesn't, if it still doesn't provide that fine, stretched feeling between the shoulder blades that you're looking for, maybe it's time for a **CBX** equipped with a **Blake** turbocharger kit. And if that combination of six cylinders, a Mikuni slide-needle carb, **turbo** bypass for easier starting, three-diameter header system and the possibility of **aquahol**

Continued

A FACE SHIELD FOR THE BRIGHT

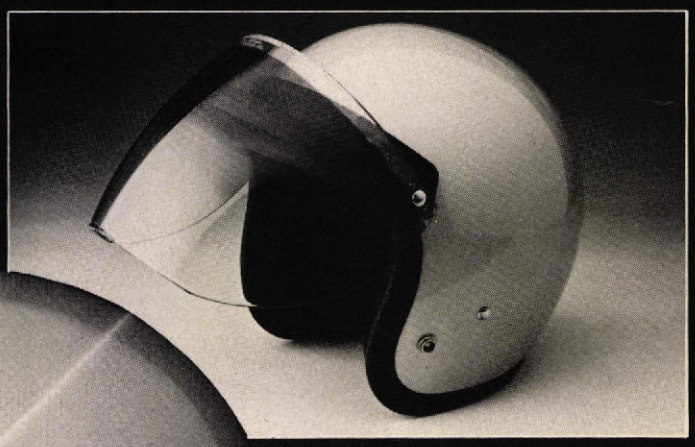
Until now, your face shield options have literally been black and white. Either fully tinted or all clear. But today there's the fantastic new Gradient Tint Face Shield from Hydron/MXL. The world's first intelligent face shield.

The Gradient Tint Shield is the latest in the vast line of ultra-high-quality shields from Hydron/MXL. It's really two shields in one, with a tinted upper portion that blends cleanly into a clear lower half. It works as well on sunny days as on overcast ones. Now, one shield can handle all of your daytime riding needs.

Like all Hydron/MXL shields, the Gradient Tint Shield is made of tough, durable Lexan® for long wear. Your shield is available with either the MXL® scratch-resistant hard coating, to protect it from those everyday situations that scratch ordinary face shields, or our factory-bonded Hydron® FogEater® anti-fog coating, **the best in the business.** It won't leave you fogged in. And we have Gradient Tint Shields for nearly all open and full-coverage helmets.

Sure, Hydron/MXL shields may cost more. But when you consider how well they're made, their list of unique features, and what they're designed to help protect, can you really afford to pay less?

Check out the new Gradient Tint Face Shield as well as the full line of Hydron/MXL shields and street/touring accessories today. Send $1.00 for lit/decals/patch. $5.00 for T-Shirt (Specify S-M-L-XL). USA only to National Hydron/MXL, Dept. CG, P.O. Box 222, East Petersburg, PA 17520.



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Dirt Tough/Street Wise

$100

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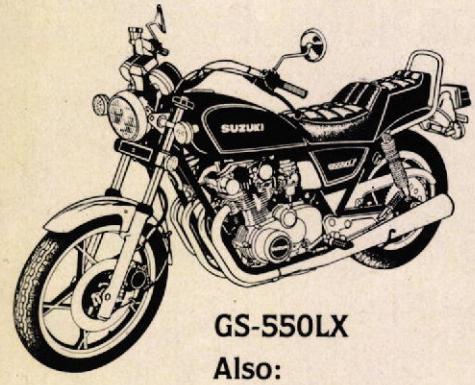
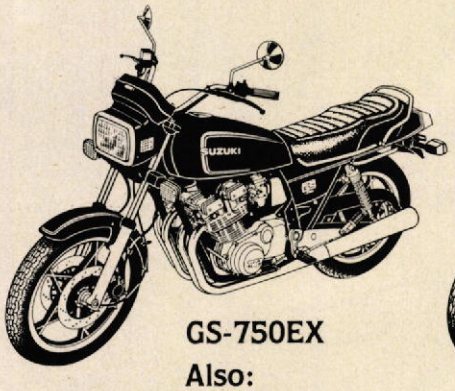
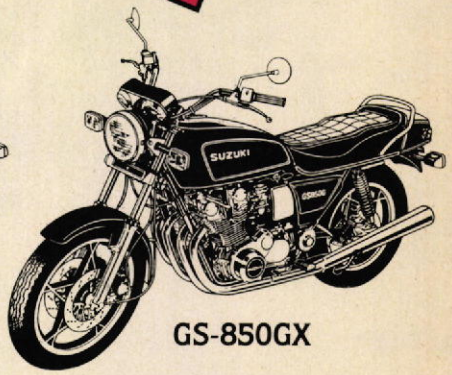


GS-550LX
Also:
GS-550TX



GS-750EX
Also:
GS-750LX



GS-850GX

Suzuki 1981 SUZUKI® The Performer.

Rebate offered only in the 48 contiguous United States. Warranty offered only in the 48 contiguous United States and Alaska. Refer to U.S. Suzuki GS or GN Model "Limited Warranty Policy" at Suzuki dealerships. A similar warranty is offered in Canada.

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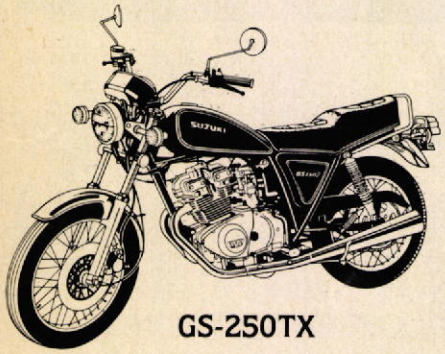
Make your best deal on a 1981 Suzuki streetbike and we'll put $100 in your pocket.

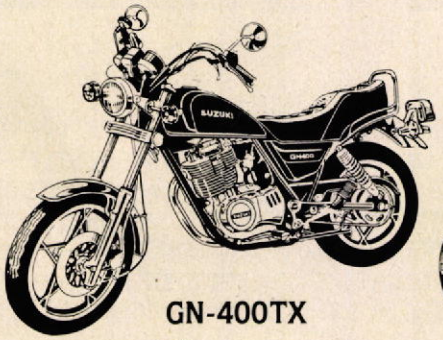
From now through September 30, Suzuki will send you a $100 check with the purchase of any of these 1981 Suzuki streetbikes. Or, use the $100 toward the purchase of your new Suzuki.

Get into your Suzuki dealer now, while there are lots of styles and colors. Look for the bikes with the bright money-saving red tags.

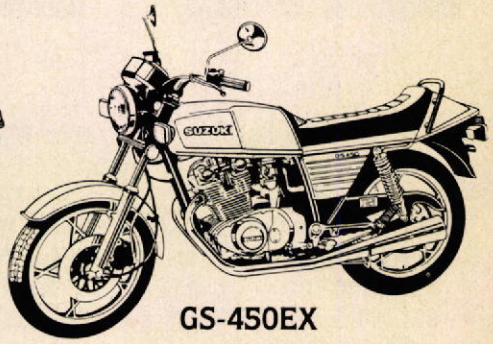
There's never been a better time to buy Suzuki. The Performer.



GS-250TX



GN-400TX
Also:
GN-400XX



GS-450EX
Also:
GS-450LX
GS-450SX
GS-450TX

NOBODY OFFERS A BETTER WARRANTY!

All these models feature Suzuki's great 12-month unlimited mileage warranty.

LOW PRESSURE FRONT

DESIGN: KAMIFUJI/PHOTO: HASHIMOTO

{THE SAENG PILOT} THE MAN BEHIND IT LIVES IN AN AIR OF SOPHISTICATION. EXPENSIVE TASTE THAT BREED NO ROOM FOR WASTE. TODAY'S STATEMENT FROM TOMORROW. ⋈UNDISRUPTED LAMINAR FLOW. PERFECT VISIBILITY, UNDISTORTED AND UNOBSTRUCTED. TELESCOPIC, QUICK DETACHING EXOSKELETON MOUNTS. PATENTED, PRIORITY LEVELED FAIL-SAFE SYSTEMS THAT STRENGTHEN AND PROTECT {{THE PILOT}} THROUGH THICK AND THIN. CONTROLLED FIBER OPTICS DELINEATING THE NIGHTIME COCKPIT IN HIGH-AWARENESS ORANGE. TURN-SIGNALS THAT MOUNT SANS FAIRING.⋈ THE ECONOMY OF QUALITY. {THE SAENG} THE MAN. {{THE PILOT}}

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SAENG

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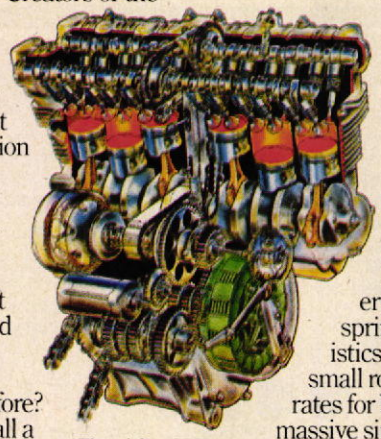
Art?

From the highest of the high tech motorcycle companies? Creators of the Pro-Link™ suspension. Winners of five consecutive European endurance road racing championships. Current Manufacturer's Champion in both American and World open class motocross competition.

Well, what would you call the sculptured form you see on the left hand page? What would you call a machine that takes sport touring to a place it's never been before?

What would you call a motorcycle as breathtakingly beautiful yet technologically sophisticated as the 1981 CBX?

Most likely, you'd call it art.



The mighty CBX six-cylinder engine.

How poetry in motion gets moving.

At Honda, form without function is not considered a virtue. High-performance machinery is built to do just that—perform. Then it is styled to look good doing it.

So beneath the sleekly flowing lines of the CBX is everything you would expect in a high performance sport touring bike. And considerably more. Six, count 'em, six cylinders.

Stainless steel, internally ventilated front disc brakes.

Each with a four-valve Pentroof™ combustion chamber for high combustion efficiency. That's twenty-four in all, in case you're counting valves, too.

Each cylinder is fed by a 28 mm CV carburetor. An accelerator pump aids smooth, no lag acceleration. Ignition is low maintenance transistorized.

And the mighty double overhead camshaft engine exhausts through mighty impressive six-into-two high performance pipes with interconnected chrome megaphone mufflers. For increased mid-range power.

The power that puts the sport in sport touring.

Anything as beautiful as a CBX deserves special handling.

An engine as technologically advanced as a CBX deserves nothing less than the very latest in sophisticated suspension.

The Pro-Link™ suspension system.

A result of Honda racing technology, Pro-Link suspension delivers truly progressive spring and damping characteristics. Low initial rates for small road irregularities. Higher rates for bigger bumps. The massive single shock is both air assisted (with a low pressure warning light) and adjustable with three distinct rebound damping settings.

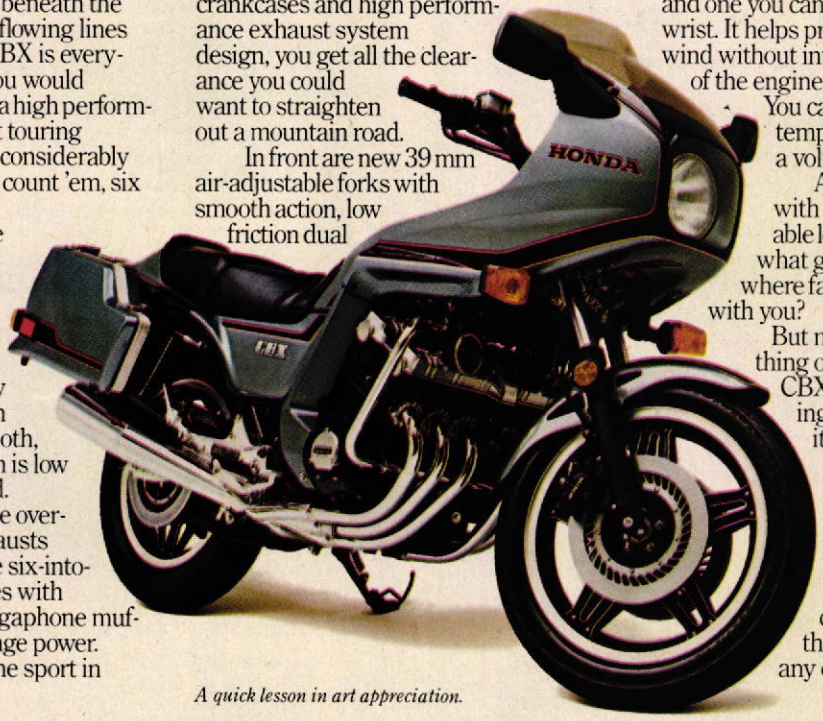
The large extruded aluminum alloy swing arm pivots on ball and needle bearings for long life.

And the unique design of the Pro-Link system allows it to be mounted low in the motorcycle, lowering the center of gravity and improving mass centralization. But don't be mislead, lower c.g. doesn't mean less cornering clearance for the CBX. With its beveled crankcases and high performance exhaust system design, you get all the clearance you could want to straighten out a mountain road.

In front are new 39 mm air-adjustable forks with smooth action, low friction dual Syntallic™ bushings. A new frame design utilizes different steering head geometry and decreased trail.

The rubber on the road is V-rated, tubeless and wrapped around wider-than-ever, highlighted aluminum alloy ComStar™ wheels.

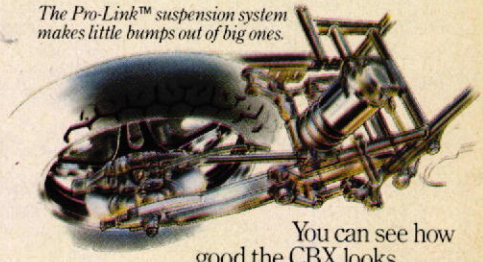
And for the very important part of going, stopping, new stainless steel, internally ventilated disc brakes. A Honda exclusive with new twin piston calipers.



A quick lesson in art appreciation.

Now for the most beautiful part, the beautiful part.

The Pro-Link™ suspension system makes little bumps out of big ones.



You can see how good the CBX looks.

But what's really beautiful is that all those handsome pieces aren't just there for looks.

The sport touring fairing was designed with an air spoiler for both rider comfort and aerodynamic efficiency. It has one storage compartment you can lock, and one you can open with a flick of the wrist. It helps protect you from the wind without interfering with the cooling of the engine.

You can order options like an air temperature gauge, altimeter, a voltmeter and a quartz clock.

And the CBX even comes with color matched, detachable locking saddlebags. Because what good is getting somewhere fast if you can't take anything with you?

But maybe the most beautiful thing of all about the 1981 CBX is that it is a piece of rolling artwork. Who knows, it may even appreciate in value as you appreciate it over the years.

But whether it does or not, you have the security of knowing that there's one thing you can do with this piece of art that you can't do with any other.

You can ride it.

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Vetter

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complete

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Pop vents $11.95 Quartz light $23.95
Fiamm horns $23.95 Lowers $84.95

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Hippo Hands	$ 41.95

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+5cm or −10cm windshield add	$ 5.95
Terraplane fiberglass sidecar, inc delivery	$ 2395.00
Saddlebags	$289.95
Tail Trunk	$184.95
Adj. Backrest	$ 59.95

PACIFICO

Aero fairing is wind tunnel designed and weighs only 18 lbs. Perfect for sport touring.

Black, white or silver	$349.95
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Slipstreamer

Acrylic windshields. The **Slipstreamer II** is the favorite of many tourers and the **SS-20** sport fairing is great on the street.

Clear shield	$ 64.95
Smoke tint shield	$ 74.95

Plexifairing II

Acrylic windshield aerodynamically sleek and attractive.

Clear $94.95 Tint $99.95

Jardine

Lucite windshields of superb design and construction.

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Motorcycle luggage of the class and construction you would expect from Samsonite.

3 Bags with hardware	$379.95
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Sized 6⅞–7¾ in several colors. All feature sturdy **Kevlar 49** construction.

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Anti-theft electronic alarm protects your bike. Alarm sounds at a slight touch.

Alarm system	$ 52.95
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Oil coolers that will help keep your bike running smoother and longer. Includes all hardware.

Model 500 black	$ 84.95
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4 into 1 exhaust systems by two of the very best. They deliver top engine performance while preserving ground clearance and providing a full throaty sound.

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Super lock made of special alloys can't be cut, sawn or broken. Vinyl covered. $ 38.95

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Cold weather riding gear.
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Standard—no accessories	$34.95
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K81	360-18	45.95	
	410-18	51.95	
	425/85-18	54.95	
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	410-19	52.95	
K181	510-16	$57.95	
	510-17	66.95	
	460-18	55.95	
	510-18	59.95	
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Raised white add $8.95

Michelin

M45	350-18	$50.95
	400-18	56.95
	425-18	64.95
	350-19	53.95

Pirelli

	510-17	$71.95
	510-18	73.95
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	425-18	58.95
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	450-17	87.95
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K112	510-16	63.95
rear	450-17	61.95
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Tubeless add $6.95

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rear	510-17	64.95
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Raised white add $10.95
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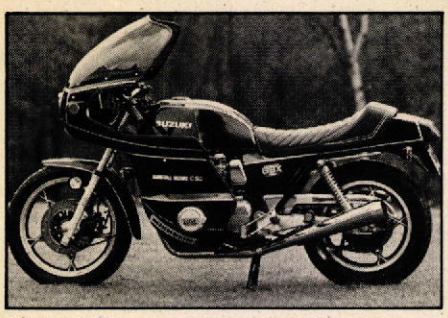
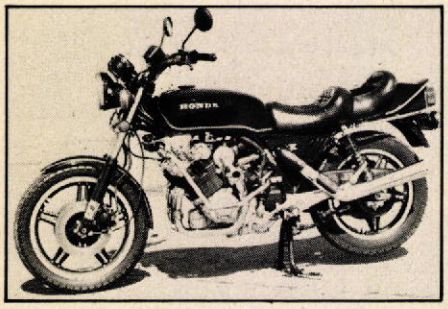


GS1100CSC claims 163 mph and low ET

Instant cafe a la Dunstall.



Turbo CBX from Blake Engineering

For the longest arms in town.

injection doesn't get your motor running, you've probably got an emotional ignition failure.

FEDERAL CASES

• More than any other single subject right now, **noise** seems to be making the rounds of motorcycle legislation. Take, for example, the recent signing of California's SB340. It extends until the end of 1982 California's 83-decibel limit for motorcycles manufactured since 1974. The bill, now law, puts off the implementation of California's stringent noise **regulations,** in effect synchronizing California law with **looser** national standards.

• And then, Connecticut S930 would require that all licensed motorcycles in that state conform to the same noise requirements as **automobiles.**

• And while you're taking a sound level on all that noise legislation, count in SB1204, presently before the U.S. Senate. If passed, 1204 would **cancel** all **EPA** regulations relative to motorcycle legislation, in effect forcing the question of noise regulation to be carried to 50 separate states' courts.

• At the same time, the commerce, transportation and tourism subcommittee of the U.S. House of Representatives has approved a measure that would take the **authority** to regulate vehicle noise levels away from the Environmental Protection Agency. The measure followed a White House recommendation to do away with the EPA Office of Noise Abatement—part of a **massive** federal budget cut proposal—by the close of fiscal 1982. If the measure is enacted, the recently issued (but not yet applied) EPA noise regulations would be **void.**

Continued

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For tank bag quality ...and choice.

When it comes to tank bags, there's just nothing like Olympic.

We offer a full range of sizes, in fact far more than the six examples shown here. Each one is characterized by high quality and attractive prices, because Olympic believes that great motorcycle luggage should be affordable.

Waterproof and easily washable with a damp sponge, Olympic bags feature an .8 mm polyurethane liner, a rain cover to keep the dirt off, a clear map pocket, and a special foam pad to protect your paint job.

Small sizes, in between sizes, and large sizes that separate into two bags for easy carrying off the bike. That's the Olympic line . . . high quality, reasonable prices and a real choice. See it all today wherever fine motorcycle accessories are sold, or write for free color catalog.

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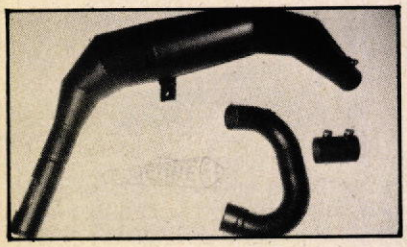

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• What happens to motorcycle noise regulation in the next few months is still anyone's guess, but there are alternatives to mandatory regulation. One of them comes in the form of an MIC group setting **voluntary** standards for MIC-member states in determining policy on motorcycle sound levels. The latest MIC guidelines call for a maximum noise level of **99 decibels** to be adopted as a standard.

• Naturally, some familiar topics continue to surface. Connecticut HB5370 would mandate helmet use in that state, while North Carolina HB997 would make the wearing of a helmet there a voluntary **affair.**

• Helmets weren't the only concern of a recent proposal in Rhode Island, though. Part of the proposal concerned mandatory helmet use, while the rest would **prohibit** anyone under 14 years from riding as a **passenger** on a motorcycle.

HARD CASH

• More often than not, the end of the **money** trail has some kind of effect on the individual motorcyclist. In this case, the effect is expected to be a major push by Pirelli into the performance street tire market. And at the other end of the trail—the beginning—is the news that **Pirelli** recently put $5 million into improvements in its factory in Sicily.

• Other money news also carries a beginning and an **end.** The beginning is the start of the longest **jump** at the July 11 Superbowl of Motocross at the Los Angeles Coliseum. At the end is a check for $1000.

RUMORS

• Never in recent history has the rumor mill churned out tales of futurebikes and **whisperings** on the doings of the major manufacturers in the volume that it is producing now. Rumor production is up on all levels. 1982 promises to be a year rich in the stuff of **dreams.** Whether it all boils down to a rude awakening after each manufacturer's lineup is announced remains to be seen. Only time and future motorcycle shows will tell. Honda is prominent in the latest round of chatter, perhaps because it's an easy target, perhaps because the recently announced CX500 Turbo comes so close to fulfilling the rumors of the previous year.

• Continuing reports of a new sub-500cc sport bike from Honda have set the industry wags speculating that **Honda** will finally market a street-only 500cc **thumper.** Some of the more audacious of them even go so far as to suggest that this mystery bike will arrive with an **MB50**-style fairing, styling straight from the CR250RS and a dry weight dramatically lower than an SR500's.

• Fueled by the apparent acceptance of the rumor of the Honda thumper, normally reliable sources begin to glaze a bit around the eyes. They expound on the overseas talk of yet another new mid-size **sport** bike. That imagined machine begins to coalesce in the minds of those industry tale-tellers as a **500cc tri-**

Film Review

ON ANY SUNDAY II
Producer: Roger Riddell, Don Shoemaker
Director: Ed Forsyth, Don Shoemaker
Screenplay: Sam Moses, Roger Riddell, Larry Huffman, Ed Forsyth
Narration: Larry Huffman
Music: Allan Alper
Running Time: 89 minutes

• Though its "Star Wars"-cum-"2001" opening scene—with brilliant helicopter camera work and a hard-driving rock 'n roll score—promises much, "On Any Sunday II" ultimately fails to deliver. The meat of the film, an 80-minute look at nine different aspects of motorcycle racing, exhibits uneven continuity and is punctuated by a repetitive, distracting comedy device and a flag-waving script only Henny Youngman and Ronald Reagan could love.

Make no mistake, however: Much of "OAS II" is entertaining, and with careful marketing it should be a commercial success. Larry Huffman's excellent narration, some stunning cinematography and Allan Alper's fine score are positive notes; the idea to view moto-sport through the eyes of seven American racers is a good one.

No, content is not so much the issue with "OAS II"; the abrupt cuts between sequences and their loosely-justified connection are what disappoint. Couple the above with an insufferably cute script and overused comic-relief crashes (nobody ever really gets *hurt*, do they?) and it becomes clear that "OAS II" has missed its opportunity to embellish the appeal of motorcycling that was so perfectly chronicled in the original "On Any Sunday."

Where the original showed a somehow pure pursuit of the happiness and satisfaction to be found in the sport, "OAS II" takes an Eighties-cynical viewpoint—gags, tricks and slam-bang action in place of content and commitment. In the end, it's fair to say that "OAS II" doesn't transport the viewer—and the unforgettable virtue of the original was that you walked out of the theatre *believing* in motorcycles and motorcycling as you never had before. "OAS II" is a story, of sorts, of specific people and specific, if disjointed, after-the-fact events. The original was an affirmation of why we all got involved with motorcycling in the first place.

"OAS II" opens in Southern California on August 7, and will reach local theatres throughout the country in six months.

—Jeff Burtt

Continued

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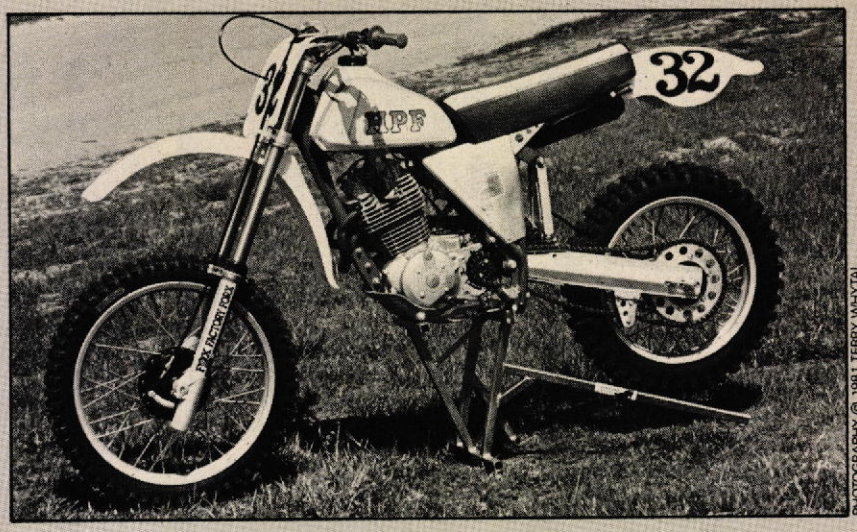
RIDE/REPORT:

Horsepower Factory 500cc Pro-Shock

Sharpening the cutting edge of four-stroke motocross.



• The mid-Seventies witnessed a rekindling of American riders' love affair with big four-stroke singles. First Yamaha, then the other Japanese manufacturers, built high-tech thumpers and filled the vacuum left by the retreat of the British motorcycle companies.

This, in turn, created a renaissance among cottage industry suppliers, which quickly flooded the market with components designed to improve the breed. Horsepower Factory (HPF), located near San Diego, California is typical of the genre, yet stands out in two important areas. First, HPF offers complete motorcycles rather than just kits; and second, HPF bikes feature multiple-link rear suspensions.

Dubbed "Pro-Shock" by creater Malcolm McCassey, the HPF machine is built around a Honda 500cc motor. The engine is left largely stock in the HPF conversion. Bore and stroke remain unchanged and a Honda piston with HPF-modified skirt and crown bumps compression to 12.2:1.

The four-valve head is flowed and an Isky ground cam is installed and S&W valve springs replace the stock coils. A 34mm Mikuni feeds the thirsty mill while providing excellent throttle response throughout the rev range. Machined spacers add 1mm to the preload on the clutch springs in an effort to help the sometimes fragile Honda clutch withstand the extra power. Unfortunately, clutch lever pressure is high and easing power to the gearbox is difficult.

Having a five-speed gearbox seems al-

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most superfluous with a powerband just slightly narrower than the Mississippi, and pulling a tall gear was generally the fastest way around the track. Just as well, since the Honda transmission was an unwilling and slow gearchanger and downshifting was best done with deliberate lever pressure.

Most thumper-crossers have high centers of gravity and the HPF machine is no exception, partly because of the 13 inches of wheel travel offered at both ends. Moto-X Fox forks support the front end, their 44mm stanchion tubes adding stability in rough sections and precise steering overall. Fox's Honda single-shock controls rear wheel action through a rising-rate linkage system patterned after a Formula One car design. The bottom of the shock mounts to the frame and forces are directed to the top of the shock through a single strut connected to the swingarm crossbar, just aft of the pivot. The resulting suspension is forgiving and almost plush in choppy sections.

At 242 pounds claimed wet weight, the Pro-Shock is light for an Open-class motocrosser let alone a four-stroke Open-classer, although the weight bias is more toward the front than on a comparable two-stroke. High-quality materials help keep the weight low. The swingarm, strut, and linkage are fabricated by Thor Products from 6061 T6 aluminum, while C&J crafts the frame from 4130 chromoly. But while the HPF bike is fairly light, its price tag isn't. For the healthy sum of $4495, the buyer gets a refined piece of four-stroke equipment, from its 8-gauge spokes laced to Sun rims, Gunner Gasser throttle and M. Robert European-style fenders.

The gap still exists between two and four-strokes, but bikes like the HPF Pro-Shock are closing it daily. And in its own class, the Pro-Shock has already sampled victory. The bike made its racing debut at the Hangtown Invitational Four-Stroke Championships, and with U.S. Grand Prix star Marty Moates at the controls, came up a winner. —*Terry Whytal*

Continued

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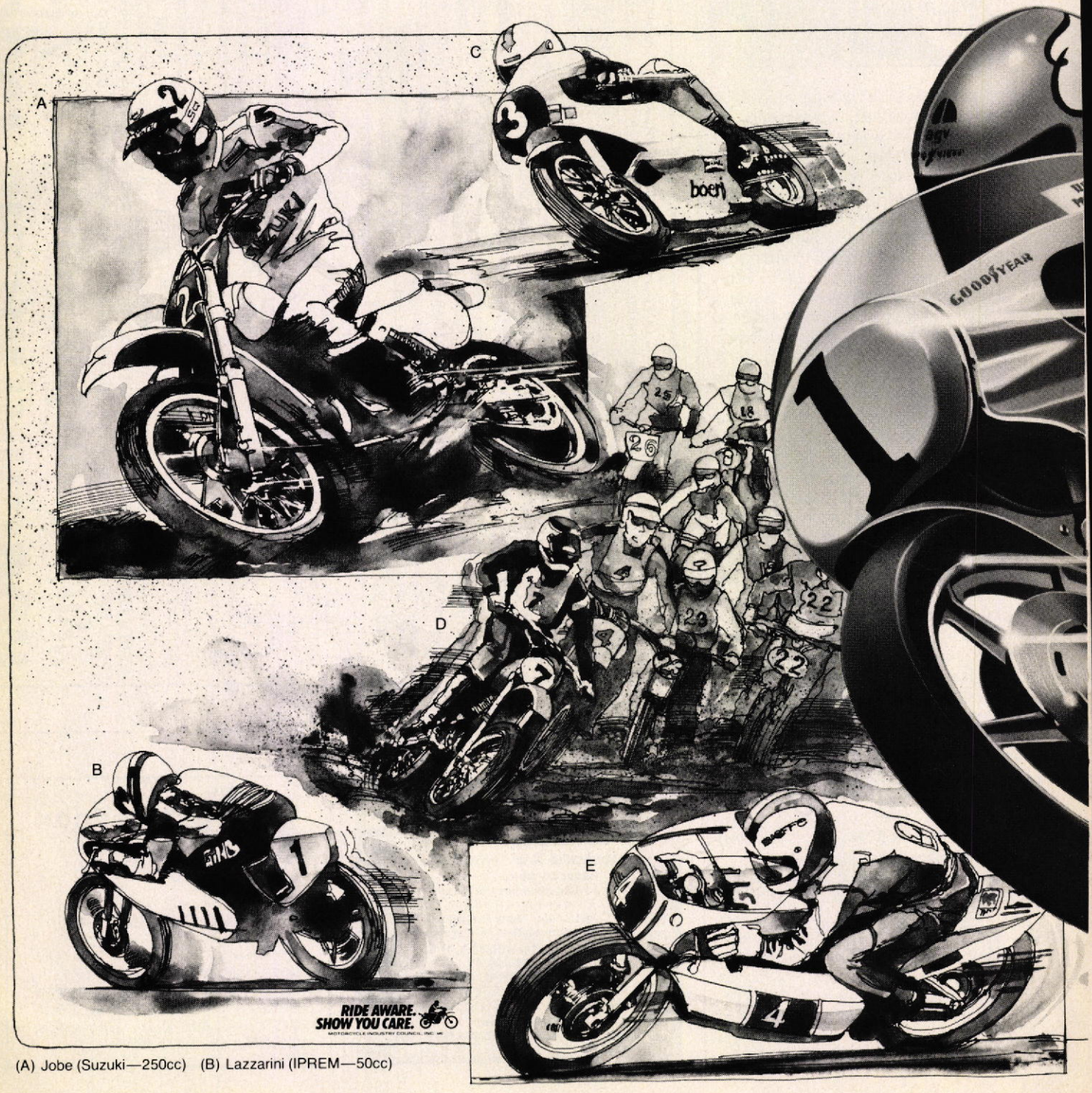

(A) Jobe (Suzuki—250cc) (B) Lazzarini (IPREM—50cc)

1980. In the world of motorcycling, it was another banner year for Champion.

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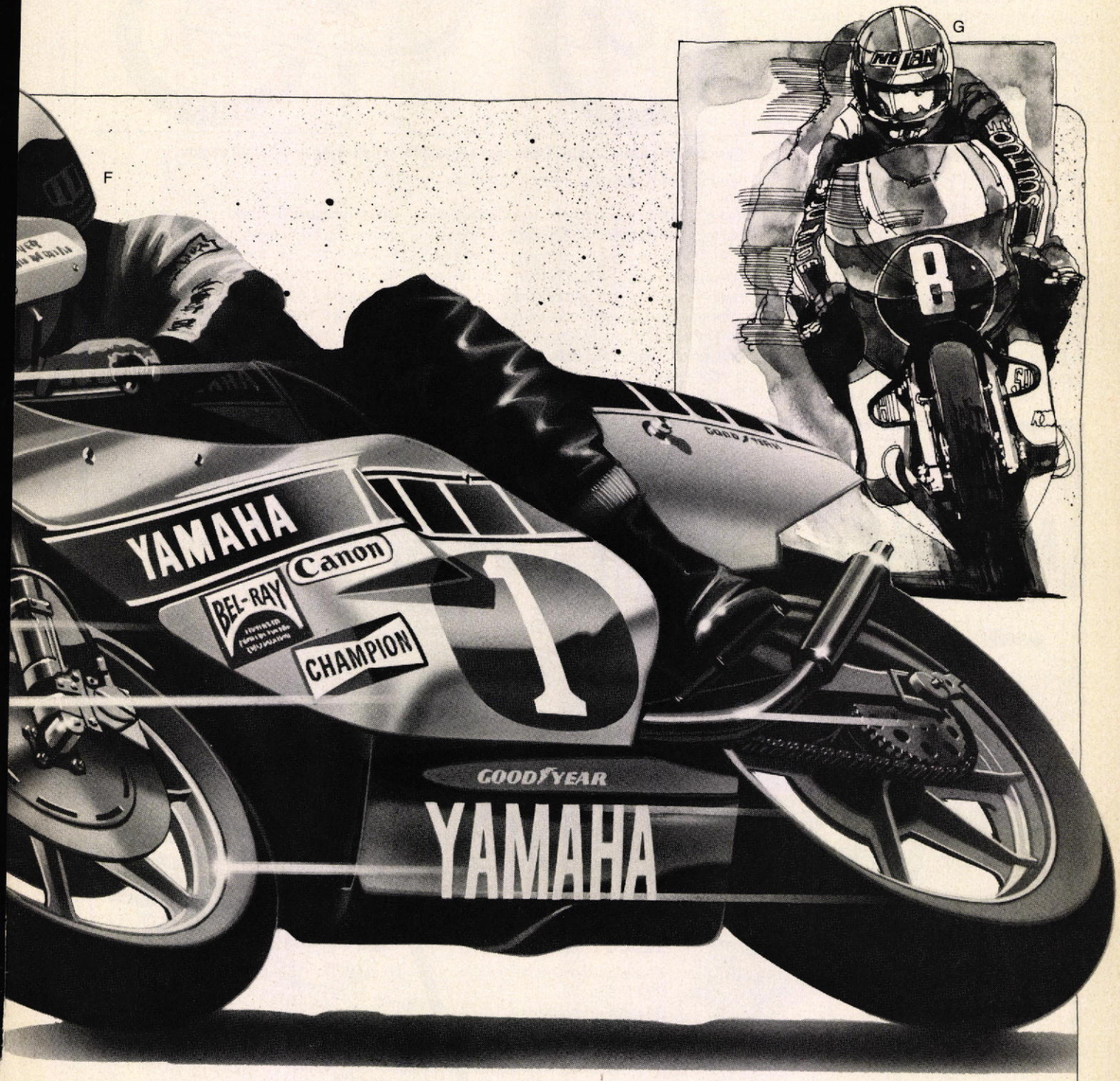


(C) Mang (Kawasaki—250cc) (D) Malherbe (Honda—500cc) (E) Bianchi (MBA—125cc) (F) Roberts (Yamaha—500cc) (G) Ekerold (Bimota—350cc)

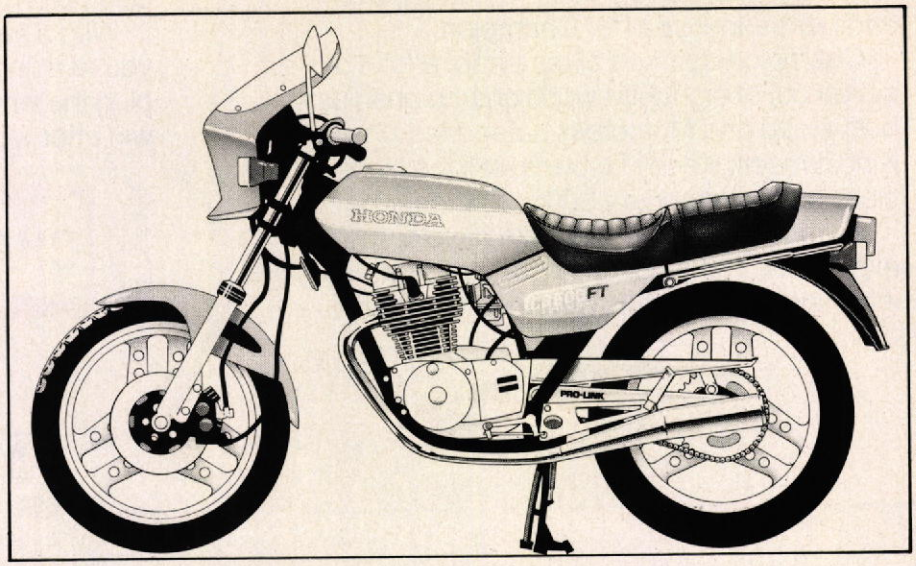
ple—no, no, the crystal is coming clearer now—or a DOHC four of either 400cc or 550cc displacement. These soothsayers predict that at least one of the three dream bikes will be ready in time for the **Milan** Show.

• With the rumor mill spinning at such an elevated **rpm,** there's no way that it will stop with merely the gossip about Honda. No, the fires of idle chatter will not be allowed to die out. And so, on to Kawasaki.

• Foremost in the would-be reality about Kawasaki is talk that the GPz550, already the answer to many a street rider's dream, will see even more **radical** tuning, lighter weight and roadracier lines than this year's model. For some, enough will never be enough.

• And continuing with the **GPz** series, there's a strong hint that the 1100 and 550 will have a new stablemate this year . . . something in the **750cc** class. Reports are coming from both sides of the fence on whether or not this newest GPz will have fuel injection, however.

• Still, with all the fodder that Kawasaki provided for rumors of 1982 bikes, the flat **denial** that there will be an '82 turbo with Kawasaki's name on it set the local gossips off the trail for a moment. But, ever resiliant, they launched into the 1983 model lineup with admirable tenacity. According to overseas contacts, European conversion to watercooling of at least 200 Kawasaki 550s as race bikes—and test beds—started the mill turning with talk that a **water-cooled GPz550** would make a fitting platform for Kawasaki's expected leap into the 1983 turbo market.



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Rumored Pro-Link CB500FT thumper sports MB-style fairing and XL500 engine

Honda's long-awaited counterpunch to the SR500?

• But, unable to fully vent their turbocharged speculation on Kawasaki, those unconventionally-aspirated gossipmongers turned their attentions to Suzuki. The latest talk (the rumor conversations are whipping around fast enough to create a **rip tide** these days) is that a shaft-drive Katana 650, replete with some **ultra-sophisticated,** new-generation oil cooler, will be Suzuki's turbo entry for 1982.

• Well, you can take or leave the Katana rumor. But some smug types aren't saying more than, "Wouldn't it be interesting if Suzuki had **more than one** turbo up its corporate sleeve?" Yes, wouldn't it?

• Far more credible is the talk about big changes in store for Yamaha in 1982. The

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appearance last year of a prototype turbocharged XS Eleven seemed to hold the promise of the world's first production **10-second** quarter-miler, but the latest conversations in the dark corners of Yamaha board rooms are that the turbo Eleven was a "development vehicle." There seems little chance of a blown Eleven this year.

• No, far more likely is the rumor that the Eleven is due for a major facelift. From there, the talk turns specific, with mention of **larger valves,** an angular quarter-fairing, sportier lines and an all-black paint scheme. Call it a Midnight Special for knee-draggers.

• And then, some say that the Eleven is on its way out. Some say that it will be replaced by a lighter, sportier **XJ1100.** Some will have to wait until Yamaha goes public to make sure.

• But if the XS1100 Turbo has hit the shelf, it doesn't mean that Yamaha is just marking time in a market turning to turbocharging as a new performance **high.** And there, the rumor trail picks up again. The best-guess speculation is that Yamaha will produce a 1982 turbo in Euro 650 trim and that it will carry a displacement of 650cc or 750cc.

• From there, the tales of the Tuning Fork Factory turn to **550 Seca.** It's next to impossible to pick out a best guess on the Seca, since there's simply a glut of rumor about it. But by distilling all the gossip down to pure **essence of Maybe,** the result is a Seca 550 with only one mission in life: Get the GPz550. How it does it will be open to question until Yamaha debuts its 1982 line.

• For the somewhat smaller in stature, short conversations indicate that an **SR125** might be in the wings. Just so that Yamaha can get in even deeper to the **first-time** buyer's psyche.

• From there, the trail leads to **BMW,** which, by all accounts, will be making some big changes as well. One popular rumor is that by using the dual-purpose R80 G/S as a model, BMW will produce an ultra-lightweight 800cc **pure performance** street machine. The bike is said to incorporate the G/S oneside swingarm, a quarter-fairing, cast wheels and still nudge the scales at less than 400 pounds.

• And talk has again surfaced on the long-rumored BMW **K4** project, an inline, water-cooled, shaft-drive four. Other mention of the rumorbike concerns anti-lock braking and a debut at the **Cologne** Show.

• And in a related bit of news, watch for Luftmeister-equipped R100RS turbos with performance profiles that reportedly include sub-12-second quarters.

• And even though Harley-Davidson has already gone public, its new corporate structure has generated a flurry of pointed speculation about just what's hiding under the sheets in Milwaukee these days. It's reported, for example, that **Harley-Davidson** is once more ready to up the displacement ante, this time with an air-cooled 1475cc vee-twin.

• Or, if that doesn't stir your juices, try the rumor that H-D will shortly unveil a 500cc vee-twin. If you find yourself unmoved, try dialing overhead valves and electronic ignition

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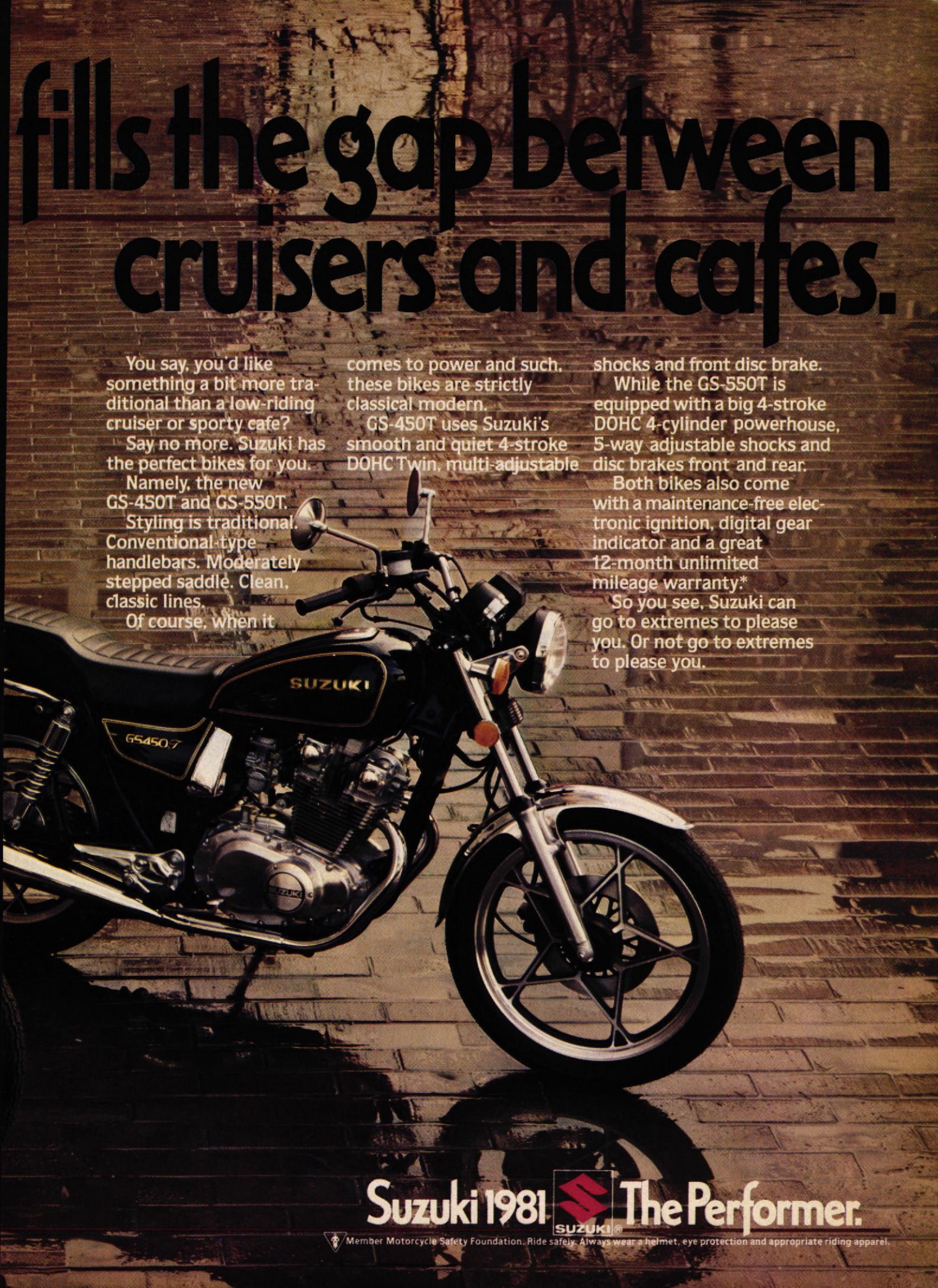

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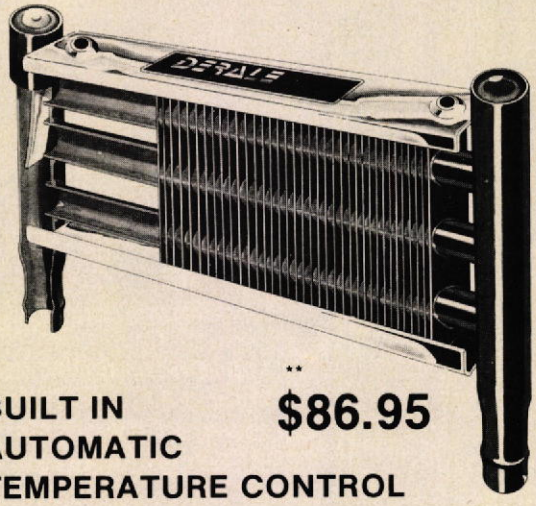

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as well as a revised styling motif into the admixture.

• And if your deepest **techno-fantasies** haven't yet been touched, if the talk about new American vee-twins leaves you cold, consider the talk that the **Porsche-Design** Harley is still alive. Still alive under that sheet, and reportedly in water-cooled configurations of two, four and **six** cylinders.

AFTER THE FACT

• Okay, call off the search for the Kayaba shock on your **CR125R.** Unless you've altered the suspension from the stock setup, you won't find one. The CR doesn't, as we reported in the April '81 issue, run a **Kayaba** shock. The springer in question is a Showa.

• But something that you'll probably find—without having to resort to a search party—is a pool of oil beneath your **IT465G.** We found the petropuddle underneath our IT test bike (May 1981 issue), even before the service bulletin from Yamaha arrived with a solution to the problem. Apparently, the IT siphons **oil** through its gearbox breather pipe when it's parked with the stock sidestand. A longer stand, which Yamaha can provide, is reported to staunch the flow before anyone claims mineral **rights** to your 465.

APART FROM THE CROWD

• A couple of studies released recently show that there's definitely something to be learned from motorcycles—at least if anyone's **listening.** The first was announced at the conclusion of an EPA-funded study to determine the direction of future noise restrictions for motorcycles. Kemperman Associates, Inc. compared the noise levels of 220 different vehicles, two-wheel and four-wheel, before releasing its findings. Those results showed that there is nothing to be gained from any further restrictions (all this before the motorcycle noise regulations are scheduled to go into effect January 1, 1982) for one simple reason: New-model motorcycles with stock exhaust systems pose no unusual **noise** threat; they are no louder than cars. Someone should have been listening all along.

• A second report, compiled for the Insurance Institute for Highway Safety, offers another insightful look at what might be gained from a little applied study of motorcycles. The study centered on 900 taxis in New York City. Half of them had single **brake lights** mounted in the center of the vehicle (sound familiar?). The others wore conventional brake light systems. During the test, those cars equipped with the single, central brake lights showed 44 percent lower frequency rate for being hit from the rear. Those with the solo lights with dual-bulb arrangements showed an astounding 58 percent **reduction.** There's no telling how that information will be put to use, but reports that the IIHS will lobby for all future motorcycles to arrive with dual-filament sissy bars are as yet unconfirmed. ●

PULLED FROM THE FUTURE FILE:

From this day onward,
motorcycling will never be quite the same.

BY PAUL DEAN

It was billed as Honda's message from the future, an experimental ideabike put on exhibition to give today's riders a sneak preview of tomorrow's motorcycles.

If that's true, then it would seem that Honda Motor Company's definition of a futurebike is one that's just on the verge of rolling off the assembly line. Because less than a year after its unveiling as a supposed blueprint for things to come, Honda's CX500 Turbo—the turbocharged, fuel-injected and outrageously stylish dreambike you first saw in the January 1981 issue of CYCLE GUIDE—is no longer an engineering showpiece on display in some motorized tomorrowland; it is present-day fact, a limited-production reality that soon will be on sale in Honda showrooms everywhere. And we're here to tell you, after testing four pre-production prototypes, that not only is the Turbo one of the most exciting-*looking* motorcycles in recent history, it's one of the most thrilling to ride, as well.

Honda has not yet disclosed exactly how many copies of this fantasy-come-true will

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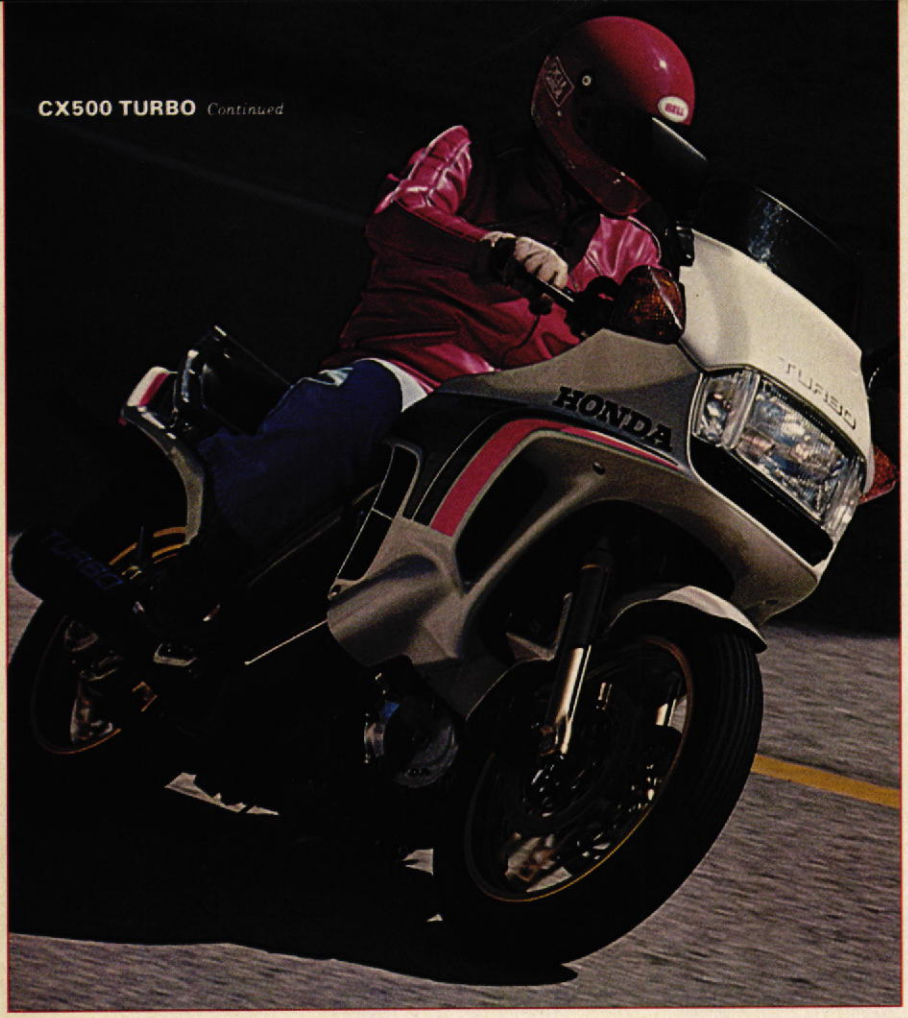

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be built or how much each one will cost; but our contacts at the company are guessing that about 2000 will hit these shores this year, and that the suggested asking price could soar to $5000-plus. But somehow, even that figure doesn't seem unreasonable for a machine chock-full of enough fresh thinking and electrifying performance to affect the wow and flutter of motorcycling for a long, long time.

You shouldn't have to do more than just *look* at the thing, though, to get your first clues as to what makes the motorcycle so important. The graceful lines of the integrated full fairing, the tidy cockpit with its elaborate instrumentation under glass, the consistency and continuity of the graphics—every element combines to effect one of the most visually striking motorcycles ever built. And that feeling was shared by just about everyone who laid eyes on the Turbo. Yet despite being almost revolutionary in nature, the styling still seems *ev*olutionary, retaining classic motorcycle shapes and proportions. Clearly, there is much for moto-designers around the world to learn from this styling exercise.

Too, the CX Turbo has the enviable distinction of being the very first turbocharged motorcycle to be built that way on a production-line basis. Granted, Kawasaki offered a so-called "stock" turbobike, the Z1-R TC, a few years back; but it was nothing more, really, than a bike that had rolled off the assembly line in Japan in a normally-aspirated state before being fitted with an aftermarket turbo kit here in the U.S. Not so the CX500 Turbo, which was conceived and engineered from Day One to be turbocharged—and not as simply a standard-issue CX500 with a turbo system dropped in place, but as a complete and original turbobike *concept*.

Indeed, that total orchestration is evident in virtually every aspect of the CX-T. Whether it's the bike's visual impact, its mechanical sophistication or the acceleration it can unleash any time it is "on the boost," to use the proper turbo-parlance, this motorcycle sets standards that other manufacturers will be hard-pressed to even *equal*, let alone surpass. And the high caliber of execution that's apparent in some of the Turbo's support systems could have significant long-term effects on the entire motorcycle industry.

For instance, in working to overcome the problems that seem always to have bothered aftermarket turbo installations, Honda actually advanced *world* technologies in several areas. One of them, of course, is the turbo system itself, which was expressly designed to eliminate or at least minimize "turbo lag." That's the term commonly

used to describe what happens when a turbocharged engine makes the transition from closed throttle to open (usually *wide*-open) throttle. Since the heat and volume of the exhaust gases is diminished when the throttle is in the closed position, the spinning turbo wheel slows down so much that it does not produce any boost in the intake tract. And even when the throttle is turned wide-open, the engine doesn't respond crisply at first because it takes a short while for the increased flow of exhaust gases to get the turbo spinning again at boost-producing rpm.

Turbo lag is the most infamous of the drawbacks inherent in turboed engines, especially those of smallish displacement. And for Honda to make headway in that area involved nothing less than the development of—in conjunction with IHI, a Japanese company with great expertise in the turbo field—the world's smallest turbocharger unit. It also entailed the careful design and placement of two different plenum-type chambers in the intake tract. This novel approach acts to damp the uneven intake pulses that result from the CX's vee-twin engine configuration, for those irregularities could cause the turbo to have a different rotational speed during one cylinder's intake cycle than during the other's. And original solutions to other commonplace turbo-system problems can be found in the CX-T's electronic fuel injection and solid-state ignition, both of which are interconnected and controlled by motorcycling's first digital (rather than analog), self-analyzing computer.

There's more to be read about these and other turbo-related innovations on the CX Turbo in "The Taming Of Turbo" on page 46. The bottom line for right now, though, is that out on the road, the finished product seems to work far better than any turbocharged motorcycle we've ever ridden.

It doesn't seem that way at first, since anywhere below about 3500 rpm the engine responds like a slightly detuned standard CX500—which, in fact, it really is, what with a lower compression ratio, smaller exhaust valves and milder cam timing, all in accordance with proven turbo- and supercharging tuning practices. But by the time the tach needle swings past the 3500-rev mark with the throttle wide-open, things really start to happen in a hurry. You begin to hear and to *feel* the rapidly growing intensity of each power impulse as the boost pressure quickly builds, and by 4000 or 4500 rpm you're being launched down the blacktop with a ferocity that seems almost impossible from a 497cc, 549-pound motorcycle.

Of course, the duration of this transition from off the boost to on it, and the resultant acceleration, as well, depends on what gear the Turbo's five-speed transmission is in. In first, the whole sequence of events happens so quickly that it's easy enough to accidentally overrev past the nine-grand redline, especially the first couple of times you try a full-throttle run. In second and third, the transition is more gradual and a lot easier to observe, but the acceleration between 4000–9000 rpm still is so godawfully vicious that it slides you back on the mildly notched seat and pulls your arms straight like some Nautilus exercise machine gone mad. Naturally, in fourth and fifth the transition is slower yet, and dialing the throttle wide-open even at 4000 rpm is not answered with a breathtaking lunge forward—turbo lag, if you will. But once the boost kicks in, all 19 pounds of it, the acceleration in those two top gears isn't all that much weaker than in second and third.

Unfortunately, we weren't able to quantify the Turbo's performance potential in our usual fashion. That was because the

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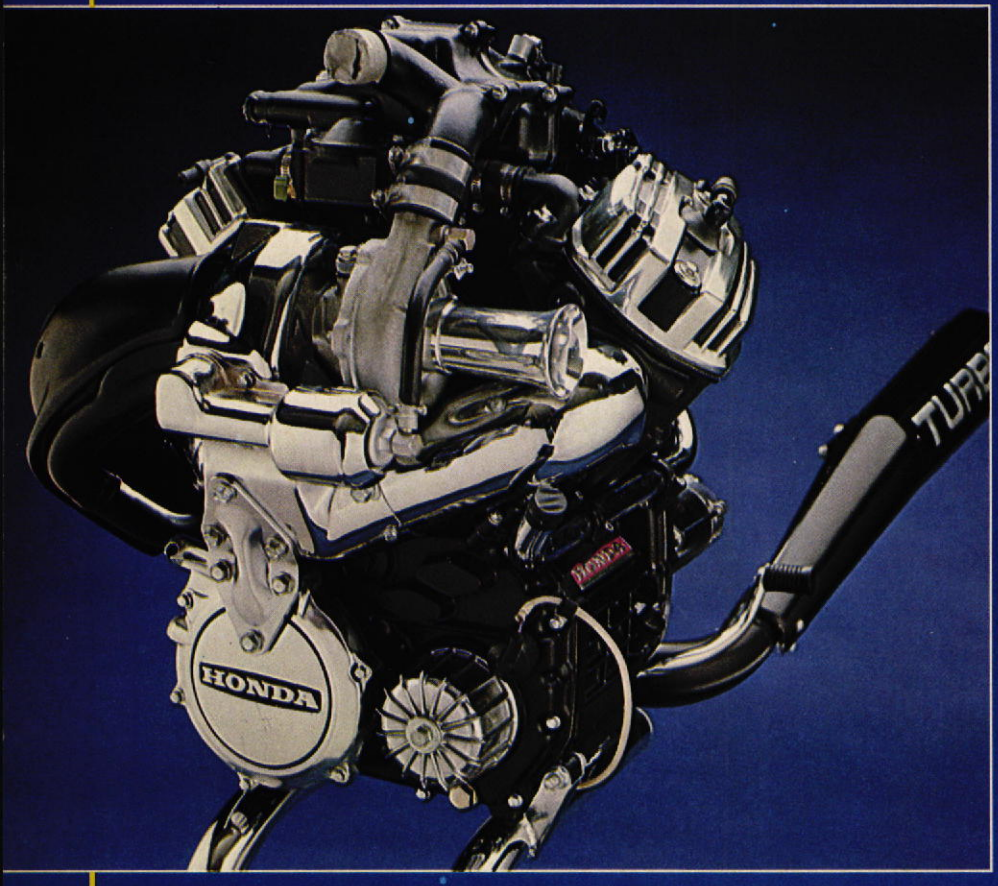

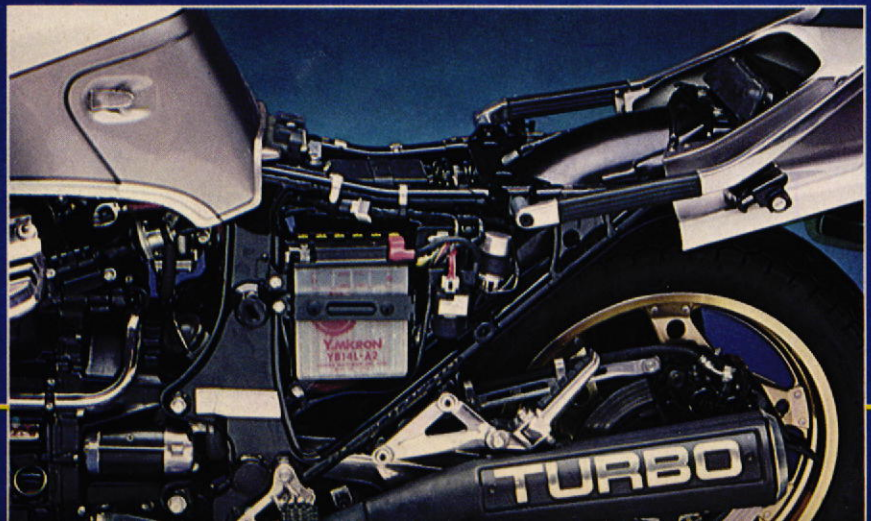

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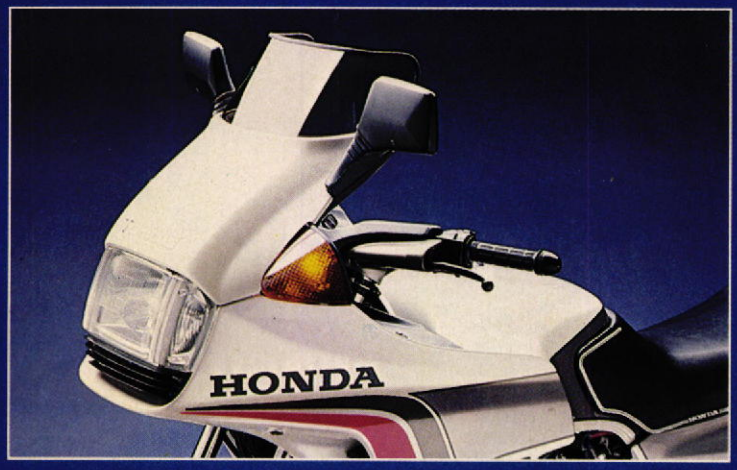

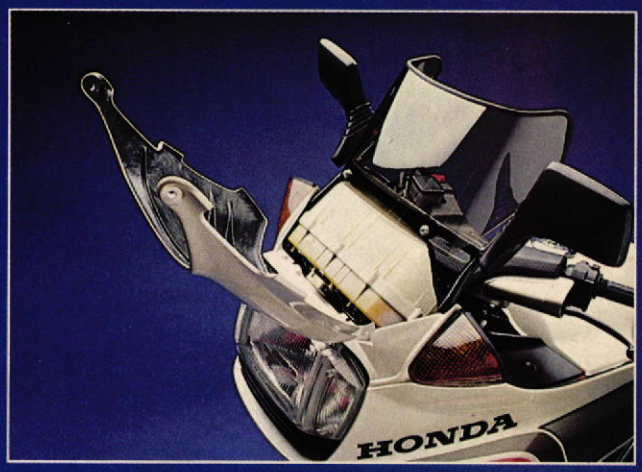

"When you look back at what happened to motorcycling in the last half of this century, the CX500 Turbo will stand as a monument, a milestone that marks one of the more important turning points in moto-evolution."

Continued

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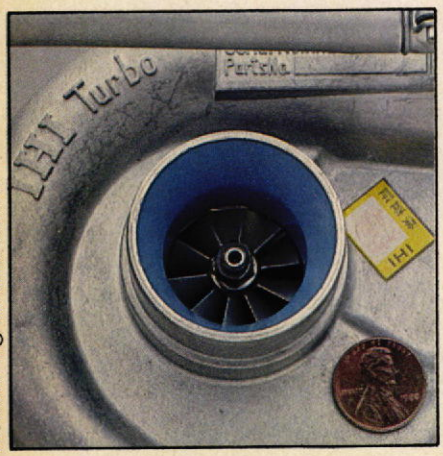
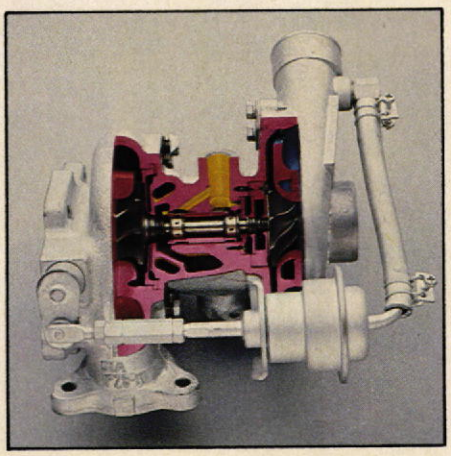
four bikes we tested were late-stage prototypes for which no spare parts were immediately available, and Honda therefore wouldn't allow us to subject them to the rigors of dragstrip or dynamometer testing. So the next best thing available to us during our abbreviated evaluation was to do a series of roll-on acceleration comparisons with a Honda CB900F that was along on the ride. And that, with the help of the butt-mounted dyno that each of us has developed over the years, told us just about everything we needed to know about the engine's performance, thank you.

In a top-gear roll-on from 50 mph, for instance, the Turbo bolted away from the 900 as though the rider on the CB had accidentally hit the brakes. What's more, the 900 could barely keep up with the CX if the roll-on was conducted with the Turbo in fifth and the CB in fourth. And if the CX was "pre-boosted" (the practice of maintaining the bike's static speed with the rear brake while the throttle is held wide-open, and when full boost is reached, which takes just a few seconds, usually, the brake is released and maximum acceleration begins *immediately*) before the roll-on was begun, the 900 had to be downshifted all the way to third gear before it



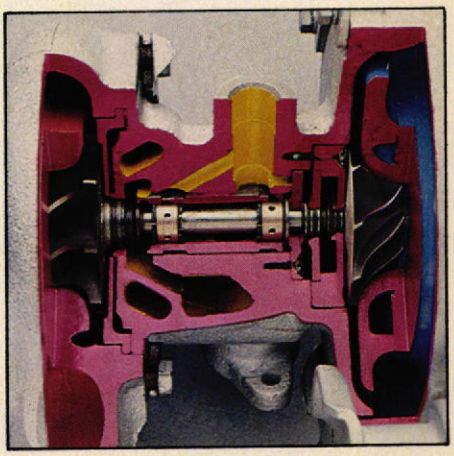
Honda's tiny turbo compressor

A major boost to turbo technology.



Nonadjustable integral wastegate

Playing it safe under extreme pressure.



High-pressure, oil-fed bearings

Making it last at two hundred grand.

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could run with the Turbo—which was still in *fifth*!

That's impressive performance, to be sure. But as evidenced by the need for those pre-boosting tricks, the CX still has a bit of turbo lag to contend with. There is, however, less lag than with any other turbo setup we know of; and when the revs are above, say, 6000 rpm and the throttle is wound wide-open, there's just about no lag at all. Besides, the performance payoff seems worth the brief wait for full boost to arrive. Any bike that can outrun a one-liter hotrod when it has only half the displacement, weighs more and is in a higher gear certainly has *something* going for it.

So in theory, the CX Turbo's performance would seem to be in keeping with Honda's proclaimed reasons for developing a midsized turbobike in the first place. The Big H's current stand on engine aspiration, you see, is that the benefits of turbocharging can best be realized these days on middle-displacement motorcycles rather than on one-liter bikes, which really don't need to be any faster. Besides, with the ever-increasing price of gasoline, smaller and more fuel-efficient engines are making better sense all the time. And a smaller engine generally allows for a motorcycle that can—with the aid of turbocharging—have a power-to-weight ratio equal to that of a literbike while being lighter, more agile and less expensive in the bargain.

As far as philosophies go, that one is flawless. But as a motorcycle that lives by that philosophy, the CX500 is not. For one, it isn't cheaper, not by a long shot, though its high cost can be justified by the fact that it's a limited-production model, and by all of the additional "stuff" it has that most other bikes don't—the full fairing, the turbo and all of its affiliated plumbing and electronics, and so on. And those same extra bits and pieces—as well as the Turbo's heavier crankshaft, beefier engine cases, bigger clutch, upsized driveline and Pro-Link single-shock rear suspension—also account for the bike's considerable heft.

So although the Turbo *could* have a power-to-weight ratio right up there in the literbike class if it weighed about as much as a regular CX500, it doesn't and so it can't. And the only reason that it *runs* like a literbike within its boost range is because the torque curve across that rpm spread is virtually flat—*so* flat, in fact, that the torque output varies damned little anywhere from 4000–9000 rpm. So while the Turbo never generates as much peak power as a 1000cc bike, it makes almost as much over a wider range of rpm. Which has to make you wonder just how much faster and more fuel-efficient the CX-T could be if its weight were a little more reasonable.

Honda's tech people did, incidentally, explain that since the four machines we rode (one of which we weighed) were prototypes, past experience indicated that the actual production versions will be a bit lighter. And while that's certainly good news, "a bit" may not be quite enough.

The reason why is that the Turbo's inordinate weight is more apparent to the rider in the handling than in the acceleration. Overall, the bike handles very well and with exceptional stability, but it's certainly not "agile" as proposed in Honda's position paper on midsized turbobikes. Those 549 pounds are what make agility difficult for the Turbo; and its longish wheelbase, slow-feeling steering, slight top-heaviness and 28-inch-wide low handlebar put off any thoughts of agility.

So while the Turbo feels absolutely magnificent in turns ranging from the medium-radius variety all the way up to superfast sweepers, it can border on the ponderous in the slower stuff. And trying to flip from side to side in a series of hard S-bends is when the bike's reluctance to be quickly banked over is most noticeable.

Not that you can't ride the Turbo CX

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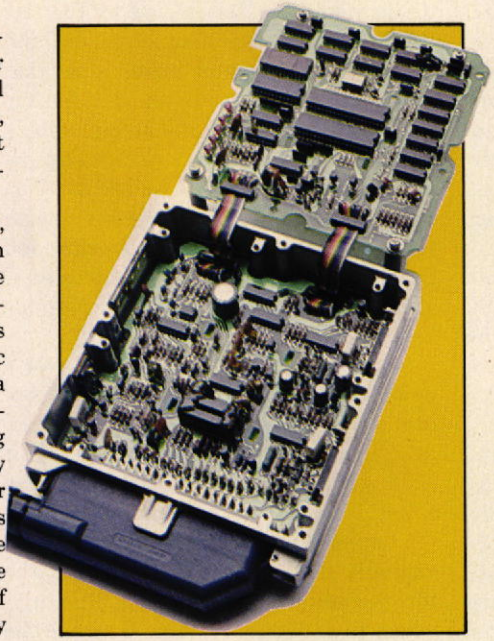
Continued

The Taming of Turbo

• Honda's CX500 Turbo is the most advanced turbocharged motorcycle ever built. From its computer-controlled fuel injection to its made-to-measure turbo, the CX is an engineering masterpiece that sets a standard for the two-wheeled industry to follow.

Yet, for all its electronic sophistication, Honda's biggest problem came with adapting turbo technology to its simple workhorse vee-twin motor. The CX's uneven firing order causes irregular gas pulses in the inlet tract that play havoc with pressurized induction. But Honda engineers confronted this problem because they recognized that watercooling was an essential part of making a highly stressed turbo motor last. The CX motor also had another major advantage: It was designed from the onset to handle more power than a sedate 500. The massive crankcases—the most expensive part of any mass-produced engine—needed only better quality bearings, bigger crank journals, stronger connecting rods and a Gold Wing-size clutch for the extra power.

The top end called for few changes, too. The exhaust valves are slightly smaller than the stock CX items, and the cam chain that drives them now has an automatic wedge-type tensioner. And, even though the Turbo motor has only a 7.2:1 compression ratio, 19 pounds of boost generates enough power and heat to require the first forged pistons in a production Honda. The oil also gets some help with a bolt-on oil cooler under the sump.



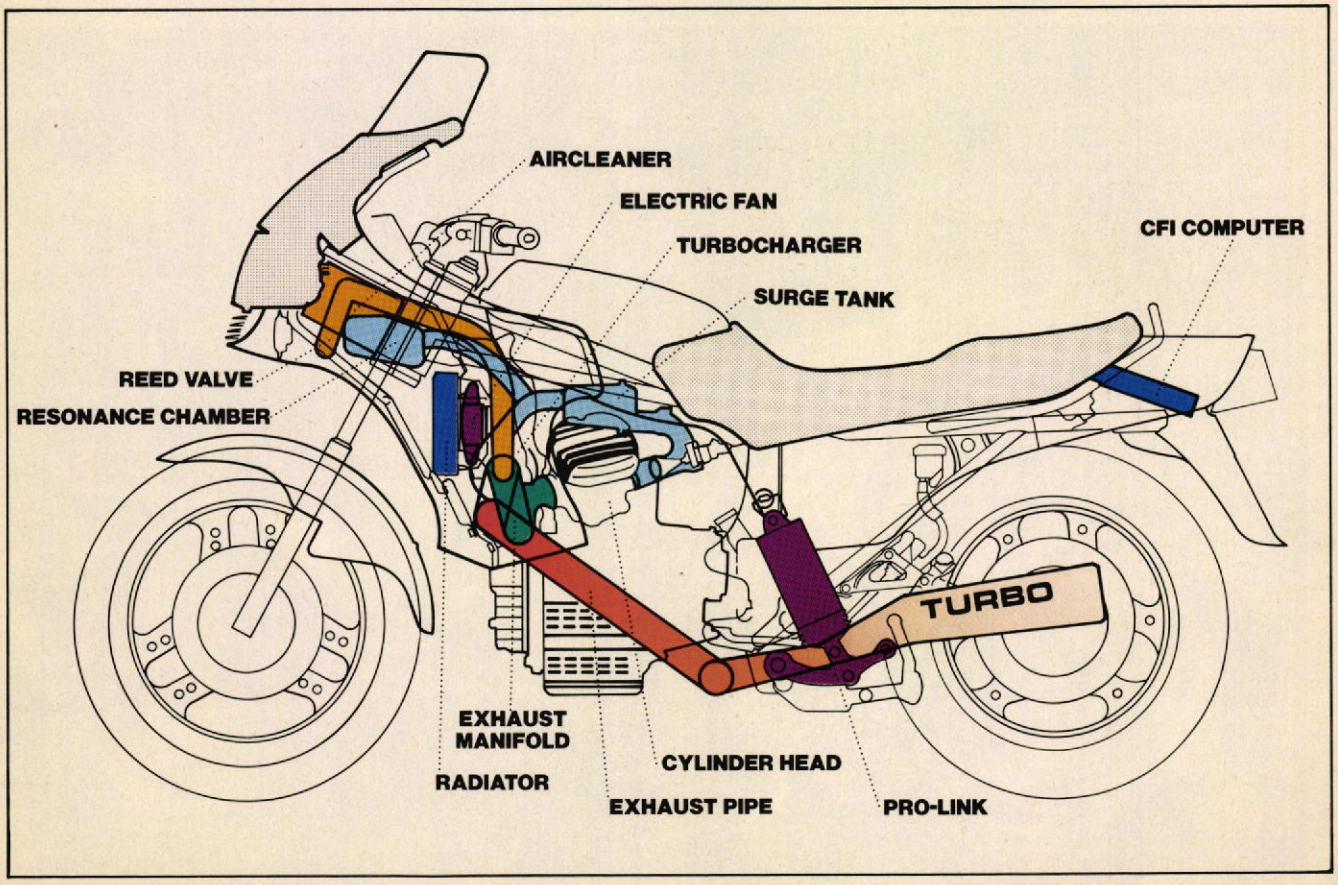
Electrical heart of a high-power system

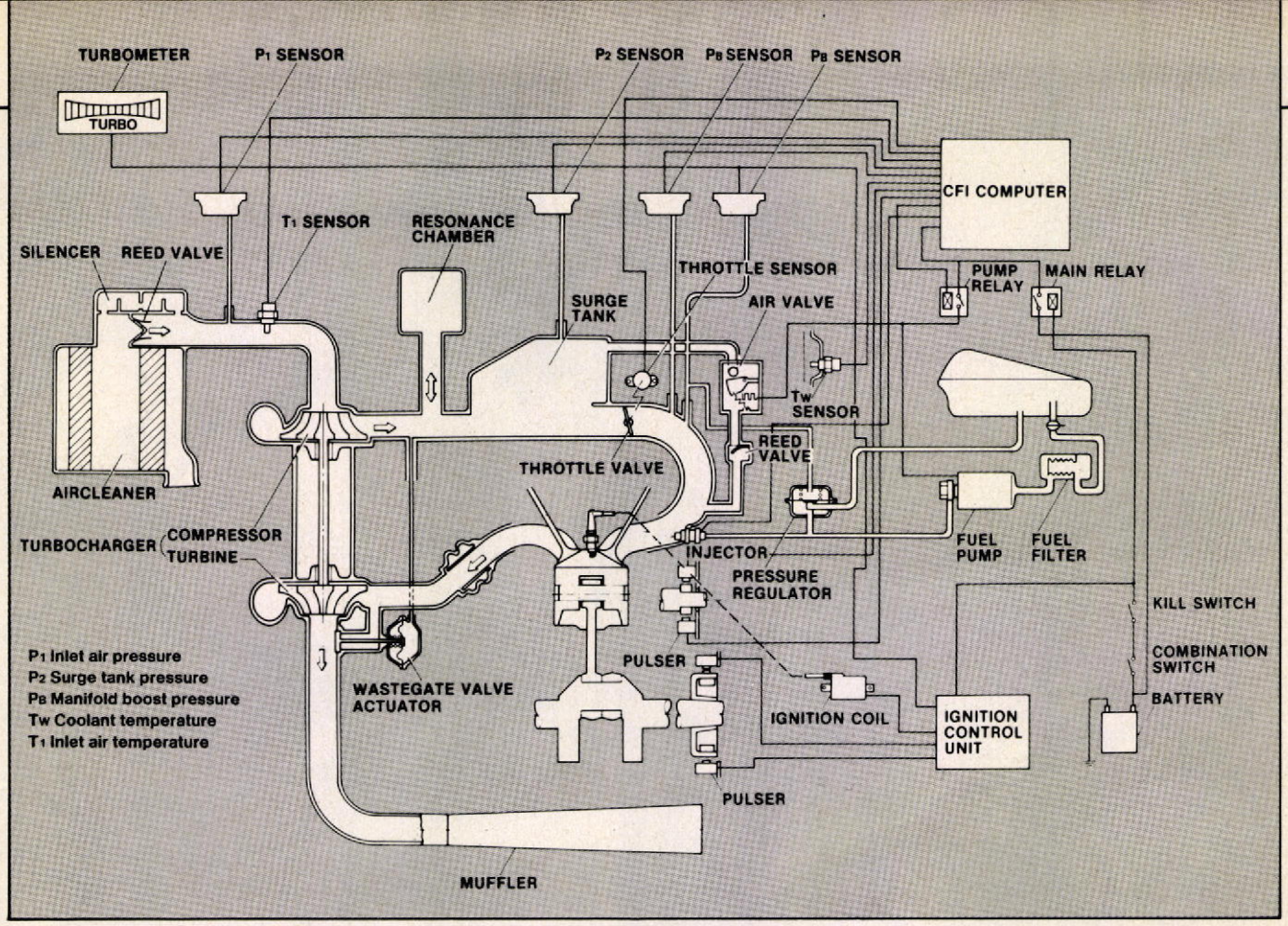
Racing around on a printed circuit.

Gearbox and driveline changes are more extensive, with different internal ratios, better quality steel and a taller final drive ratio to make use of the Turbo's claimed 77hp. But all these changes were relatively simple compared to overcoming the CX's intake pulsation problems.

Trying to feed two asymetrically timed cylinders—the CX fires at 432 degrees and 288 degrees of crankshaft rotation—from a common source like the turbo means that the two small inlet passages have different resonant tuning. The total volume of the system is not great enough to compensate for the imbalance of the inlet tracts, so Honda has included two large-volume chambers in the inlet system. The larger surge tank is located just upstream of the throttle butterflies and its main purpose is to help balance the resonant tuning at higher rpm. A resonance chamber, much like Yamaha's YEIS two-stroke cannister, is mounted up in the fairing and is connected to the intake system by a long hose to smooth out the uneven intake pulses at low rpm.

Hours of development overcame the





resonant tuning problem, but Honda still had to design a new turbo that was small enough to work with a 500cc motor. Available turbos had all been designed for larger-displacement automobiles and were too large for the 500cc vee-twin, so Honda built its own tiny unit with a 48mm compressor and a 50mm turbine—20 percent smaller than any turbo ever built. With an AR ratio of 0.35 and an upper rev limit of 240,000 rpm, the turbo produces 18.5 pounds of boost pressure—almost twice the boost pressure of most aftermarket turbo systems. Unlike accessory units, the IHI-built turbo has a nonadjustable integral wastegate that dumps excess gases into a dual-mufflered exhaust system. Should the wastegate jam closed, the Turbo's sophisticated computer monitors the situation and after flashing a warning on the dash, shuts down the fuel injection system until a safe level of boost is attained.

The Honda-designed computer has many more complex functions, as well. Unlike most two-wheeled computer systems, the Honda unit is a digital rather than analog system. This design difference allows the Honda package to be smaller, but more importantly, it lets it perform far more functions at once. Most notably, Honda uses what it calls a dual-map system to control fuel injection. Rather than simply monitoring engine speed against throttle opening—or boost pressure against engine speed—Honda takes both these readings and lets the computer superimpose the information to obtain a far more detailed picture of the amount of fuel the motor really needs.

With sensors measuring ambient air temperature and pressure, as well as boost pressure and water coolant temperature, the computer draws information from seven sensing systems to decide its every move. And should one of those many sensors fail, there are, in most cases, back-up sensors that the computer automatically selects. If one system should fail completely the computer will still let the CX Turbo rider limp home, even if the bike will only fire on one cylinder. But failures like that should be rare because the computer has a small check panel of lights in its outer casing that warns of any problem. Various combinations of the five tiny lights pinpoint a failure in any of the sensor systems, making dealer replacement of the defective part simple—if the dealer has the part, of course.

The computer even has a warning-light sequence to indicate problems with the Nippondenso fuel injectors. Each injector is timed to fire downstream into the motor. An electric fuel pump delivers fuel and a pressure regulator returns any excess back to the gas tank.

The Turbo also has a special cold-starting circuit that bypasses the regular throttle valves. A small air passage from the surge tank is controlled by a computer-actuated valve and a conventional reed valve. When the motor is cold, the valve allows a small volume of air into the motor while the throttles remain closed. The computer also regulates the fuel injectors to provide a rich cold-starting mixture that allows the motor to slow-idle and function normally as it warms up.

Honda has also included a reed valve in the air inlet system to help the Turbo meet EPA noise restrictions. The valve is located downstream of the fairing-mounted air cleaner and allows air to pass into the turbo. When the throttles are shut, back pressure from the turbo compressor closes the reed valve so air can only flow back into the air cleaner through a tiny silencer system in the airbox. In every other way the Turbo was easy to adapt to EPA rules. The incredibly precise fuel injection meters such an accurate fuel mixture that emissions are lower than a stock CX motor. Fuel consumption is also claimed to be improved.

With the reduced inertia of a tiny turbine diminishing turbo lag problems, a cold-start system that lets the Honda fire instantly and a computer that controls the various functions precisely, Honda appears to have overcome many of the problems that have prevented turbocharging from gaining wide acceptance. If other manufacturers follow Honda's lead in developing sophisticated answers to the complex turbo problem, the *normal* in normally-aspirated could well come to refer to turbocharged. —*David Dewhurst*

Continued

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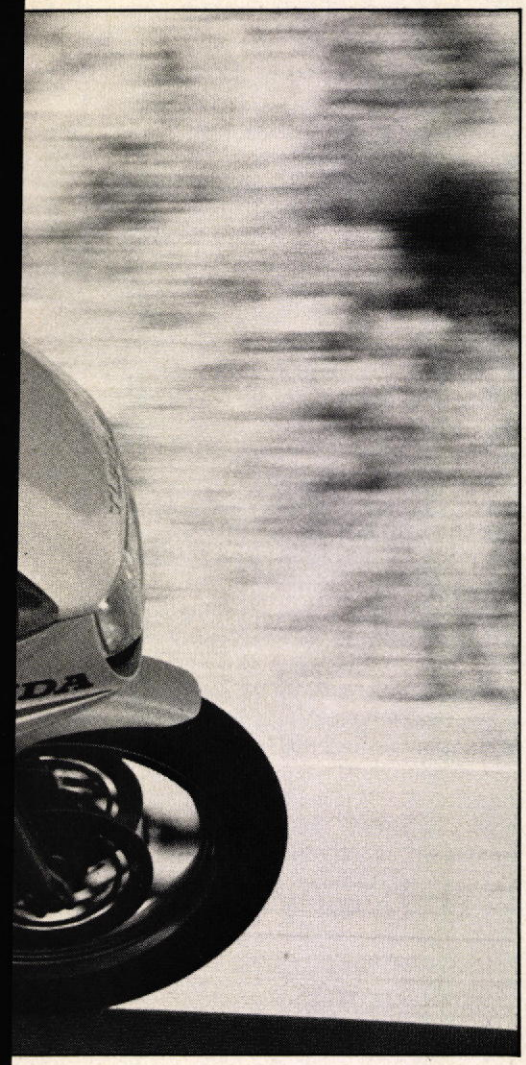
very, very quickly on a twisty canyon road. You can, once you grow accustomed to the bike's size and develop the proper techniques for grinding the rearset footpegs (and sundry other bits of undercarriage) around your favorite turns. The ergonomics are right for it, offering a European-style riding position that, with one exception, is the nicest we've tried since the Yamaha 650 Eurobike. The exception is that a long-legged rider (six feet and taller) finds it hard to tuck his knees in behind the edges of the fairing, since the notched seat tends to lock him into a location that's just a few inches too far forward. There are no such complaints about the suspension, though, for it contributes immensely to the Turbo's sport-riding prowess. And it absorbs most undulations in the corners so effectively that twitches and wiggles and wobbles are virtually non-existent.

That same suspension effectiveness also affords the Turbo a superb highway ride. The air-assisted front fork ranks right up there with the best in terms of compliance over a wide variety of road surfaces, yet it doesn't bottom on the really huge bumps and doesn't allow excessive dive during hard braking. And all the aluminum-swingarmed Pro-Link rear end lacks is adjustable rebound damping on its air-spring single shock. Because if the air pressure is boosted up near the maximum to compensate for a passenger or an exceptionally large/fast rider, the rear end rebounds too quickly. Otherwise, the progressive action of the rising-rate system affords the kind of plushness normally associated only with bigger-displacement touring-class bikes. And its wheel control in full-tilt mode leaves little to complain about.

Something that many enthusiasts *will* complain about, though, is the awesome complexity of this motorcycle, especially if something buried deep within its unfamiliar innards goes belly-up. The CX500's transverse vee-twin layout offered, for the most part, more complication than most *before* being turboed, injected, computerized and fully faired; and now the prospect of digging into something more involved than a plug swap or an oil change is enough to discourage anyone but the shop that gets $25 per hour to do such things. And chances are that the $4-per-hour kid who'll eventually end up doing the work will be just as intimidated and confused by the Turbo's complexity as the owner might. So while today's solid-state electronics are incredibly reliable and the Turbo's computer has a high capacity for self-diagnosis, things *do* stop working sometimes; and when they do on this motorcycle, rest assured that one way or another, their repair will not come easily or cheaply.

In this case, though, the justification for the Turbo's greater expense—either initially or in the long term—is that it's not everyman's bike. That's why only a small number will be built, and why Honda doesn't foresee turbos making normally-aspirated motors obsolete, at least not in the predictable future. Instead, Honda sees turbocharging as an alternative to, not a replacement for, the present style of doing things, a new way in which the amount of performance in a given engine need not be directly proportional to its cc inventory.

One way or another, though, all of this



adds up to controversy, just as every great stride forward in technology through motorcycling's many years has motivated enthusiasts to choose up sides and wage philosophical cold war. And just as always, the technocrats will love the new idea, the traditionalists will hate it, and in the end they'll all have to come to accept it. Because it *will* happen, this turbocharging business, and you can bet your bottom dollar on it.

So umpteen years from now, when you look back at what happened to motorcycling in the last half of this century, the CX500 Turbo will stand as a monument, a milestone in time that marks one of the more important turning points in motoevolution. It probably won't turn out to have been the best turbo bike, nor the cheapest nor the fastest nor the most sophisticated. But it'll always be the first *real* turbobike, and a pretty damned fine one, at that.

So maybe Honda was right after all. This bike *is* a message from the future. We just didn't realize that the future is *now*.

Hot Lick on a Turbo

• A glance at the CX500 Turbo reveals that almost none of the old workhorse CX is in view, and that in itself makes this styling treatment notable. Since its inception late in 1977, the CX500 has been the chameleon of the Honda street-bike line, yet through all the cosmetic manifestations it has endured—from Standard to Custom to Deluxe to Silver Wing to SW Interstate—the CX has never overcome the basic look its transverse vee-twin engine mandated. Until now.

Now is the Eighties, and as the first of Honda's 1980-decade models the CX500 Turbo is a showpiece of corporate future-think. It was, in the words of a member of Honda's marketing team, "designed to serve as a kind of statue to others in the design field." Not bike designers, he added, but those aesthetes who previously might have regarded motorcycle styling as strictly utilitarian. The Turbo incorporates radical, sophisticated technology and its cosmetics, to Honda, had to reinforce this theme. To say that Honda succeeded is an understatement.

To begin with, the fairing is an equation of aerodynamic and ergonomic function. Fiberglass in prototype stage—it might be molded fiberglass and plastic in the production version—the fairing achieves a slender-but-solid look that underscores the flow-through styling of the entire bike. Molded scoops route air in toward the radiator and then out and away from the rider's legs. The instruments are recessed into a cowling for better night visibility. A hatch above the quartz-halogen headlight pivots back for ease of instrument service. Even the turnsignals are positioned to deflect air away from the handlebar grips. And the best part of the package is that the fairing really *works:* At virtually any speed, wind buffeting is reduced almost to the point of nonexistence. No profiler's café nor tourer's barn door, the CX500 Turbo fairing is elegant and efficient.

The tank and seat sweep back from the fairing and continue the integrated, flow-through look. The tank itself posed an interesting design challenge because much of the complicated turbocharger plumbing had to be located where the forequarters of conventional gas tanks normally repose. Maintaining a 5.3-gallon capacity without creating a humpback whale must be counted as an accomplishment.

The seat is slightly stepped, semi-European and almost completely a styling lick. Its function is to engender a lean and low look when viewed in profile, and to that end it does not flip up—fitting a hinge would have compromised its height, according to the Honda marketing man. The seat does, however fit a variety of riders well and it has a singular attribute of converging with the hindquarter of the tank so a rider's knees can grip padded vinyl, not metal.

The sidepanels and tail section complete and complement the CX500 Turbo's design. Their day-glo red striping is reflective for conspicuity, and silver graphics have replaced the gold used on the initial prototype (*CG*, January '81) because the silver paint was found to last longer.

Not since BMW's R100RS has the concept of an integrated sport design been so fully realized. And never, perhaps, has a styling gauntlet been so purposefully thrown. As it entered the Eighties, Honda discerned that the motorcycle marketplace had reached a plateau and perceived a need to attract new customers, and enthuse old ones. So Honda decided to transform that plateau into a platform, a launching pad for its Eighties-decade street machines of which the CX500 Turbo is an exponent.

As a progenitor, the Turbo will not be the bike for everyman. Radical, sophisticated and unusual are not popular adjectives with most of the buying public, but neither are they a marketing kiss of death. The CX Turbo was designed for the high-tech—and, undoubtedly, high-buck—rider, but its importance will be measured more by what comes after it than how many units it sells. As a styling exercise, though, it is certain to attract attention in the showroom. And Honda is betting those looky-Lous will be back to buy when the second generation hits town.

—Jeff Burtt

Continued

The Selling Of Turbocharging: A Look Into A High-Pressure Market

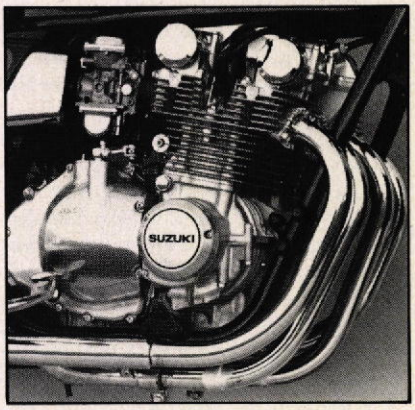
• All of a sudden, turbocharging has given motorcycling a whole new marketing game. At their best, turbocharged bikes from the manufacturers will have an overall level of sophistication far beyond anything previously available. They will be a different kind of motorcycle.

This new kind of motorcycle indicates significant trends for the motorcycle industry, some of them unprecedented. For one thing, the displacement race might come to an end as engineers develop ways to achieve the same results without the traditional penalties of weight and fuel consumption. For another, the manufacturers are showing a willingness to accept technology developed and refined largely in the automotive industry, a traditional avoidance. Finally, there seems to be a new interest in the concept of the true all-around motorcycle, the bike that might not do any single thing spectacularly but does everything exceptionally well. This, too, is an idea more characteristic of cars.

The exact technical reasons turbos are coming are fairly easy to enumerate. They can all be lumped into the general category of "achieving high performance levels with minimal machine size and weight," quote courtesy of Ed Burke, Manager of Product Planning for Yamaha. The familiar goal is a more ideal combination of high performance, manageable size, lighter weight and good fuel economy. No surprise there. But some of the *real* reasons, the marketing and corporate rationales, are more subtle and, to the future of the OEM turbocharged motorcycle, more important.

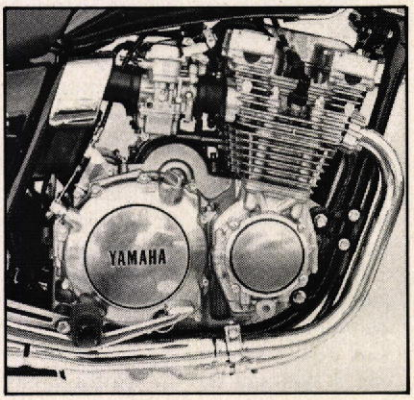
"We will use this machine as a corporate statement ... an understatement, not chest-beating," said Jon Row, Assistant Manager of Honda's Motorcycle Advertising Department, in describing the arriving CX500 Turbo. In his view, "A CBX turbo *would* be chest-beating." The innovative motorcycle as corporate statement has often been Honda's way—witness the CB750, 350/400 fours, Gold Wing, CBX, CX500, Interstate. Each was a breakthrough in technology and manufacturing, different from anything else then available; each upped the ante to the other manufacturers. And in the CX500-derived Turbo, Honda has a very clear corporate statement; no matter what any other manufacturer does, it will not be like Honda's Turbo.

Yamaha's motives are somewhat different. What we might call the TEET (Truly Excess Eleven Turbo) is public, but not likely to make the showrooms. Burke: "I don't know that we've ever nailed it down to just the 1100." That bike might have been a useful development tool but, he continued, "in fact, an 1100 turbo really doesn't make a lot of sense in this market ... the 650–750 area would support that very well." This comes from the man who *knows* what is coming, and it is no coincidence that the 650 Maxim and 750 Seca share the same engine series. And he gives credit where he believes credit is due. When asked if previous turbo applications, specifically the Kawasaki Z1-R TC, have had much effect on what is to come, he told us: "The acceptance of a turbo relates more to the automotive field." Many people on the Yamaha turbo project have spent considerable time working on Toyota engine development, for example.



The future Suzuki and Yamaha turbos?

Four-cylinder assault on Honda twin.



PHOTOGRAPHY © 1981 PATRICK BEHAR

From our sources, the Suzuki 650 turbo seems to be the closest thing to an inside tip you can find, even though no one at Suzuki would confirm or deny—which usually means a confirmation. What is missing is the form; chain-drive E-model or shaft-drive G-model. Gene Trobaugh, Vice President, Marketing at U.S. Suzuki, pretty well corked the idea of a monster: "We're not supposed to build street bikes to be racers; they're supposed to serve a useful, legal purpose on the street." So don't look for a blown GS1100. At least not on the showroom floor. And there's another point to be made right here: None of the Best Guess Rumors indicate a turbo bike with more performance than the current top level exemplified by a top-of-the-line hyperbike.

Trobaugh thinks turbocharging is "a normal stage in the development of motorcycle technology," and he mentioned such things as "enhancing the desirability of the product" for the "street-performance enthusiast." All this is fairly general, noncommital stuff, although maybe not surprising from a man with a secret about a new toy we can't see yet, but he left a warning about the future of turbos: "If they turn out to be expensive and they have a lot of problems and they're not as fast as expected—whatever that is—then they could turn out to be a dismal failure." Trobaugh, a man not yet showing his cards is, we think, willing to bet those ifs won't apply to Suzuki.

Kawasaki's Bob Moffit, Director of Marketing Research, flat out told us: "We will not have a turbobike in 1982." However, even though it was not actually a Kawasaki deal, the Z1-R TC did give Kawasaki its only experience with turbos. Moffit thinks it was an ice-breaker in his long-term view of motorcycling: "We tend to look at the whole turbocharging thing as part of a broader phenomenon." He thinks engineers have concerns with the idea of a relatively small displacement, air-cooled engine operating under boost, and feels that lighter weight through materials selection might be preferable. "Materials are radical, too; they just don't seem as radical," he noted. Still, he thinks turbocharging is here to stay: "I don't know how logical it is, but it damn sure is inevitable."

You can't keep technology down on the farm after it's seen Par-ee, and turbos are here, right around the corner leading to your local dealership. It isn't often we can attend the baptism of something really new and different, and that's exactly what turbocharged motorcycles will be. No manufacturer has ever sold anything like this before. It's going to be interesting.

—Don Fuller

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A vee-six Turbo freight train makes a singular sound as it hauls through the hills

Only high weight compromises the comfortable Turbo's canyon-racing prowess.

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Ride Review

• It's quite simple. Honda rewrote the reference materials. The new listing under "turbo" is completely different from the one I remember. The previous definition included extreme turbo lag, followed by a tach needle that buried itself as the front end clawed at the sky and the rear tire smoked itself to death. Fine, if your idea of ridability is a battle for control.

The reworked reference includes a dose more élan. And provides the predictability of a conventionally-aspirated bike, with a turbo rush when *you* want it, not when its darker nature decides to peek around the corner. Sure, you can argue that the Honda CX Turbo is only a prototype. But it's not just a prototype of a 1982 motorcycle, it's the working model for the hyperbike of tomorrow. Suddenly, a lot of definitions are due to be updated.

—Larry Works

• Honda's CX500 Turbo is such a giant step ahead of anything else on the market it makes my techno-brain spin. I could sit and stare at its mechanical details all day and not get tired. I even like Honda's radically different styling treatment. It, too, has so many nice little detail touches it just begs to be examined. But where the bike really calls for close scrutiny is on the street. Out there on the twisties the CX Turbo's performance more than lives up to its futuristic design. Even though it has a little turbo lag, it blasts between corners like a fighter plane; indeed, I stepped off the Turbo onto a CB900 and it felt so tame in comparison I had to look down at the sidecover to make sure it wasn't a 750. And any motorcycle with that sort of performance, those classic good looks and technical tricks is *my* kind of machine.

—David Dewhurst

• I'll tell it like it is. The CX500T is the kind of bike I'd design if I were educated with an engineer's pencil and sliderule, rather than a throttlestick and typewriter. Only I'd make the bike simpler. No fairing or other trickery Honda is using to introduce the motorcycle community to turbocharging.

Don't get me wrong, the CX500T has the nicest road fairing I've tucked behind yet. But it removes me from the excitement of the turbo engine. There's no sudden blast of air on my helmet as the turbo huffs at full boost. And there's no rush of air around me as speeds approach 120.

I can't wait for turbocharged motorcycles to be accepted for what they really are; ordinary bikes with just a little more horsepower. Then we can dispense with fairings and trickery such as LED clocks, panavision fairings and Detroit-style padded handlebars, and let the turbo do the talking.

—Dain Gingerelli

Continued

Honda CX500T

SPECIFICATIONS:

IMPORTER: Honda CX500 Turbo
American Honda Motor Company
100 West Alondra Boulevard
Gardena, California 90247

CATEGORY: street

SUGGESTED RETAIL PRICE: NA

ENGINE

Type ..... turbocharged, liquid-cooled four-stroke transverse vee-twin
Valve arrangement ..... pushrod-operated overhead valves, four valves per cylinder
Bore and stroke ..... 78.0mm x 52.0mm
Displacement 496.9cc
Compression ratio 7.2:1
Carburetion ..... Nippondenso electronic fuel injection
Air filter ..... disposable paper element
Lubrication ..... wet sump
Starting system ..... electric only
Ignition ..... computer-controlled solid-state CDI
Charging system ... 12-volt; alternator, voltage regulator, rectifier

DRIVETRAIN

Primary drive ..... straight-cut gears; ratio NA
Clutch ..... wet, multi-plate
Driveshaft-to-rear-wheel ..... spiral-bevel gears; ratio NA

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	NA	NA	NA
II	NA	NA	NA
III	NA	NA	NA
IV	NA	NA	NA
V	NA	NA	NA

SUSPENSION/WHEEL TRAVEL

Front ..... air-spring, 37mm stanchion tube diameter / 5.0 in. (127mm)
Rear ..... Pro-Link, air-spring / 4.8 in. (122m)

BRAKES

Front ..... dual single-action hydraulic calipers, 10.8-in. (275mm) discs
Rear ..... double-action hydraulic caliper, 10.8-in. (275mm) disc

TIRES

Front ..... 3.50V18 Bridgestone Mag Mopus Z303
Rear ..... 120/90-17 Bridgestone Mag Mopus G508

DIMENSIONS AND CAPACITIES

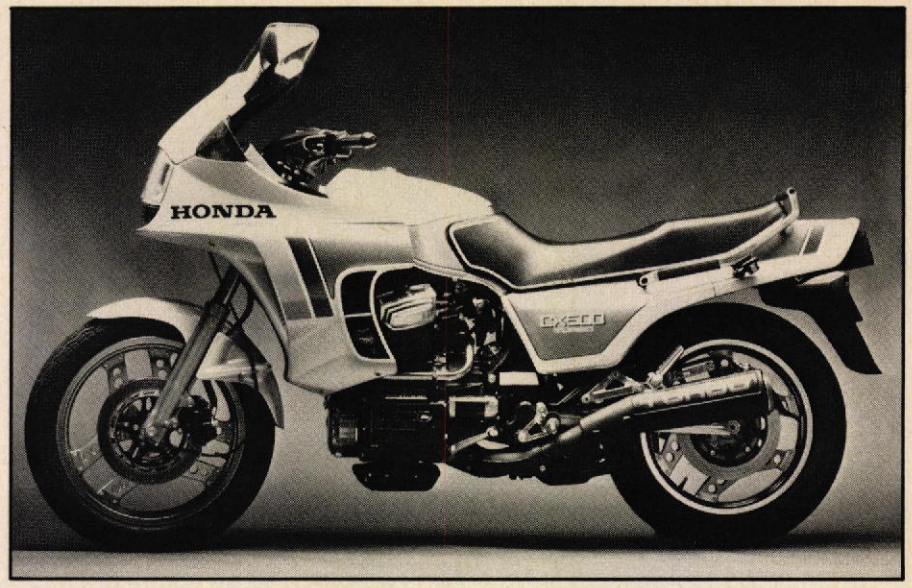
Weight ..... 549 lbs. (249kg)
Weight distribution ..... 49.7% front, 50.3% rear
Gross vehicle weight rating (GVWR) ..... NA
Wheelbase ..... 59.3 in. (1506mm)
Seat height ..... 31.3 in. (795mm)
Handlebar width ..... 28.3 in. (719mm)
Footpeg height ..... 14.3 in. (363mm)
Ground clearance ..... NA
Steering head angle ..... NA
Front wheel trail ..... NA
Frame ..... pressed and tubular mild steel, no front downtubes
Oil capacity ..... NA
Fuel tank ..... steel, 5.3 gal. (20.0/)
Instrumentation ... speedometer, odometer, tripmeter resettable to zero, tachometer, turbo boost gauge, temperature gauge, fuel gauge, digital clock

PERFORMANCE

Fuel consumption ..... NA
Range, maximum ..... NA
Range, reserve only ..... NA
Speedometer error, 30 mph indicated ..... NA
Speedometer error, 60 mph indicated ..... NA
Best ¼-mile acceleration ..... NA
Top speed (observed) ..... 136 mph (220 kph)
Stopping distance from 30 mph ..... NA
Stopping distance from 60 mph ..... NA

AVAILABLE COLOR: Pearl White

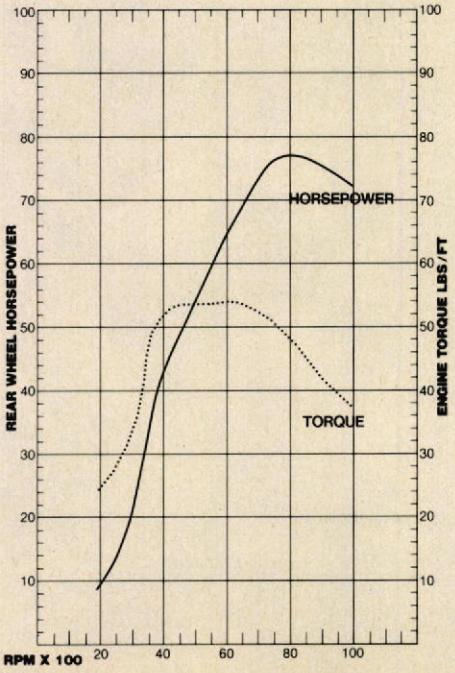
These weights, measures and power curves refer to a prototype motorcycle. Horsepower figures supplied by American Honda Motor Company.

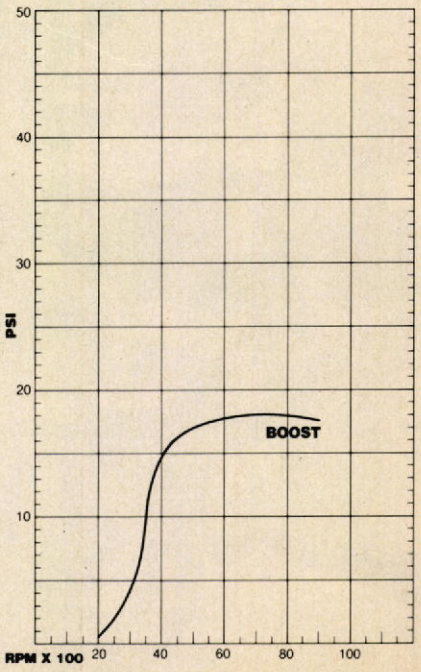


COMPARATIVE TEST DATA:

Make	Quarter-Mile, sec/mph	Top Speed, mph	Weight, lbs	Stopping Distance From 60 mph, ft.
Honda CX500 Turbo	NA	136	549	NA
Honda GL500 Silver Wing	14.12/91.0	110	464	NA
Honda CB900F	12.21/111.1	141	547	130
Kawasaki GPz550	12.97/101.7	119	449	149
Yamaha 550 Seca	12.99/101.7	121	418	119

PERFORMANCE:





PRODUCT EVALUATION:

a-trak Motorcycle Handling System

A theoretical solution to a real-world problem.

• It doesn't take a genius to figure out that driveline torque reactions cause most shaft-drive motorcycles to jack up and down like oversize pogo sticks whenever their throttles are snapped open or closed. But few realize that chain-drive bikes are prone to torque reactions, too. Austrian engineer Horst Leitner realized it, though, and his invention—called a-trak—is an attempt to find a solution to this complex mechanical problem.

The a-trak system is a bolt-on device designed to remove the forces that cause a motorcycle to lift or lower on its suspension when its throttle is opened or closed. Although only in the prototype stage for shaft-drive bikes, an a-trak system is available for $109.59 to fit most popular chain-drive street bikes. It consists of two nylon-type rollers fitted in a two-piece aluminum mount that bolts the rollers to the swingarm above and below the pivot. Installation takes about a half hour, and with the rear wheel moved forward the chain can be routed over the rollers without adding any links.

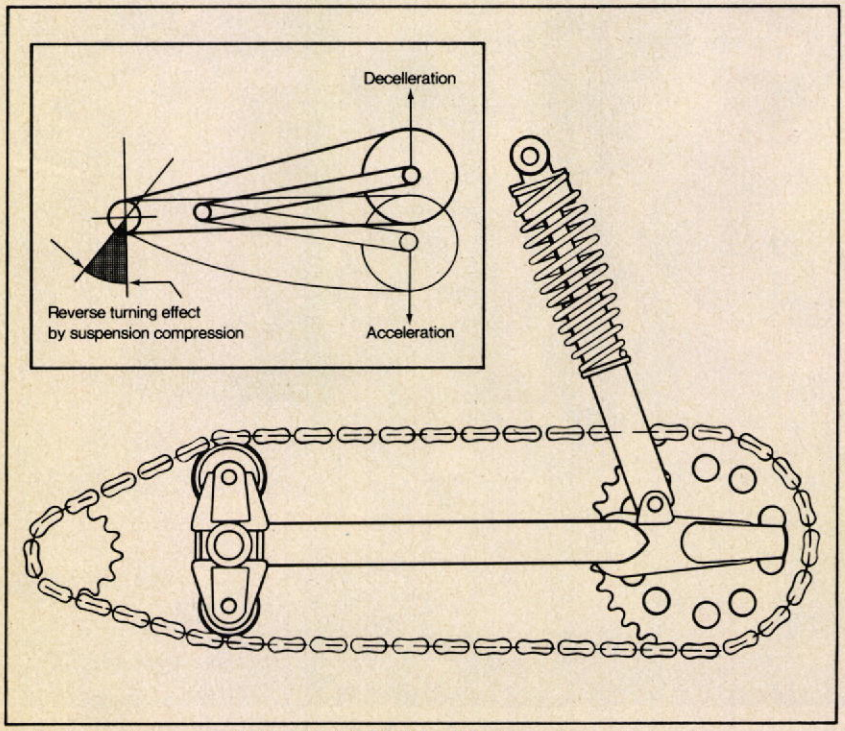
The upper and lower runs of the chain are parallel to the swingarm with the a-trak fitted, and, claims Leitner, this re-routing removes the unwanted torque forces that tend to extend or compress the suspension. On a stock bike, the chain runs at a considerable angle to the swingarm as it passes between the countershaft and the rear wheel sprocket. As the countershaft pulls on the chain under acceleration, a secondary force is generated that tries to extend the rear suspension. The opposite is true during deceleration, when engine-braking forces in the chain create a secondary force in an upward direction and tend to compress the suspension.

These additional forces affect a bike's steering geometry as the rear end moves up and down, and it also makes the rear suspension feel harsh because it restricts wheel travel. With the a-trak fitted, you notice that the unwanted forces do indeed disappear, just as Leitner promised. The rear suspension feels noticeably plusher. In fact, our a-trak-fitted Kawasaki KZ750 test bike felt *too* soft at the rear unless preload was increased to the hardest setting. While cruising, the Kawasaki's rear end was more compliant with the a-trak fitted, but under hard acceleration the rear end squatted dramatically. It appears that simply eliminating the forces that jack up the suspension also removes the natural tendency of a motorcycle to counter the effects of weight transfer.

Worse still is the increase in noise from the rollers and their sealed bearings. With the throttle open, the a-trak sounds like a detonating motor; on trailing throttle the rumble is enough to attract the attention of pedestrians. And no matter how short the ride, the noise is never less than annoying to the rider.

With these disadvantages and only a slightly plusher ride to show for your money, the Leitner Corporation of 2650-D Walnut Avenue, Tustin, California 92680, appears to have found a device of questionable value for street riders. Under racing conditions, with the suspension perfectly tuned to the system, the more compliant rear end might provide some small gain. There would appear to be even more to gain on a dirt bike traversing rough ground, but there are no a-trak models currently available to fit dirt bikes. For the average street rider we see few real advantages. In fact, a-trak appears to unearth more problems than it answers. And until *all* the problems are solved, a-trak's value is questionable.

—David Dewhurst



Solid design is apparent in the detailed finish of the two-piece a-trak unit

Bolted to the swingarm pivot, a-trak removes the forces that affect suspension.

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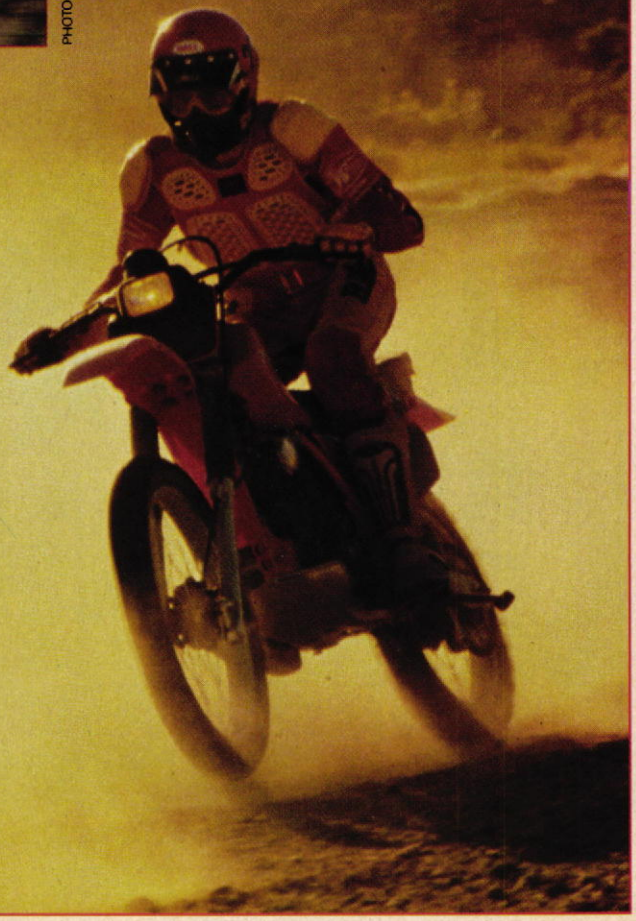
TRAIL TEST:

Honda XR200R

Getting serious about four-stroke enduro bikes.

BY MICHAEL JORDAN

PHOTOGRAPHY © 1981 TOM RILES



PHOTOGRAPHY © 1981 DAVID DEWHURST

A serious four-stroke enduro bike has been built at last. Some people naturally will refuse to believe it, citing the official enduro rider's handbook which says it isn't possible—check the cross-reference under BSA Victor 441. Yet Honda's XR200R is one four-stroke capable of rising up on its new air-spring fork and Pro-Link rear suspension and going eyeball-to-eyeball with any 175cc two-stroke enduro bike currently available.

Four-stroke power fascinates off-road riders because of the flexibility it affords. The ability to get into the throttle at virtually any rpm and come up with enough grunt to overcome almost every obstacle constitutes an enormous advantage. Such power lets you concentrate on the trail instead of the task of coordinating throttle and gearbox. The XR200 provided just this sort of thrust in its previous incarnation, but the bike's emergence as a competitive enduro mount actually is due to the new R-type chassis, which finally lets you put that grunt to good use. Thanks to its long-travel suspenders, the XR200R has woods-wise sure-footedness to match

the off-road advantages of its four-stroke engine.

The XR200 has traveled a long trail to arrive at competition-bike credibility. As part of Honda's new generation of four-stroke off-road bikes, the 1979 XR185 quickly earned a reputation for its large grins quotient—but not for much else. Last year's XR200 had more punch, courtesy of a larger piston, but not enough to boost it out of the playbike category. Sure, an XR200 could do a lot of things, but only a rank beginner could admit affection for it without cringing with embarrassment in serious enduro circles. And yet the XR200's short half-life on showroom floors—not to mention the long list of XR200 riders applying for a piece of Honda's enduro awards fund—indicated a swelling market for a serious four-stroke enduro bike.

The catalyst for the XR's transformation from silly to serious proved to be Honda's decision to stake its corporate identity to the success of Pro-Link. Commitment to suspension revolution required drastic changes to a motorcycle calibrated for playbikers.

The XR200R's Pro-Link resembles that of the CR125R, but there are a number of significant differences. As usual, a single shock is mounted vertically behind the engine. A cast-iron link connects the bottom of the shock to the swingarm. As the rear wheel strokes upward, the linkage articulates at an ever-increasing speed, producing a true rising rate of springing and damping. Compared to the CR125R, though, the XR's Pro-Link has two inches less travel and a spring rate nine percent softer. And like all the XRs, the 200's four positions of adjustable rebound damping are spread over a far wider range than the CR's to cope with the greater variety of riding conditions encountered in enduro riding—there's a 46-percent difference between the stiffest and softest XR damping settings and only a 16-percent difference between the CR settings. As far as enduro riders are concerned, though, the most important features of the XR's Pro-Link are the measures taken to protect the linkage's vulnerable pivots from corrosion: Each pivot has a grease fitting and is insulated from the off-road environment by a double-lipped neoprene seal.

To match the superior performance of the Pro-Link rear suspension, the front of the XR has been upgraded as well. To begin with, a Showa air-spring fork has been bolted in place. Dual Syntallic bushings take the stick out of the sliders, while travel has been increased a full inch. For more front-end rigidity, stanchion tube diameter has increased 4mm, the triple clamps hold the fork tubes fractionally farther apart and each fork leg grips a larger front axle with a sturdy four-bolt clamp. The whole business rides in a steering head equipped with tapered roller bearings instead of balls, improving durability as well as rigidity.

For all these changes in the chassis, the motivating force behind the XR remains the same 200cc four-stroke engine related to the 1970 SL100 motor. It does without a

four-valve cylinder head, counterbalancers or a carburetor accelerator pump. Only the kickstarter-actuated compression release can be called sophisticated. Yet this small motor continues to earn the highest marks for the way it answers the call of your throttle hand immediately and squirts you forward without a cough or a burble.

The only problem with this engine has been the crude operation of the six-speed gearbox. In the past, the XR's transmission ignored even the most ferocious tap dance on the gear lever unless the throttle was rolled off deliberately and the clutch fully disengaged, remaining firmly entrenched in gear precisely at those moments when serious gearbox work was required. To bring the transmission up to par with the engine, Honda has improved your chances of catching another gear by reworking the gear box, increasing the number of engagement dogs in some gears and enlarging the engagement slots in others. Our XR's gearbox responded to abuse far better than before, as a result permitting those crucial downshifts under power that make the difference between riding to the top of a slippery hillclimb and just bogging down. We still had problems with third gear, however, because the engagement dogs rounded off (due to improper heat treating), making it difficult to hold third except under a very light load.

Thanks to 10 inches of suspension travel at either end, the R-type XR200 can finally take advantage of all the goodness the engine now has to offer. The rocky ledges, twisted tree roots and hidden chuckholes that used to toss the XR200 around now can be negotiated with one or two more clicks of speed. The bike feels plush, but it always maintains an even keel over rough ground.

Perhaps the best thing about the new chassis is that the bike's basic configuration remains the same. It's still lightweight and compact, which adds up to a supremely agile enduro bike that can wriggle through tight spots with more confidence and precision than you would believe possible from a bike with 10 inches of suspension travel. The XR200R never daunts you; thanks to its quick steering and sharp responses, you seem to sniff out the safe paths through log jams, bramble patches and pine stands effortlessly. It's this aplomb that makes beginners feel like experts. But this same tractability also inspires new feats of daring from accomplished riders. Even with a minimum of technique, you can dominate this bike and make it jump through hoops. Simply because you're not afraid of the bike getting away from you, antics copyrighted by Dick Burleson feel within reach.

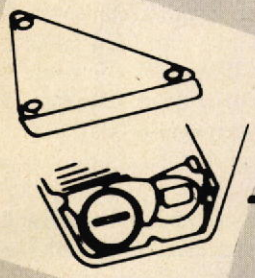
This combination of a lightweight chassis with an engine that delivers power with rheostat-like predictability makes the XR perfectly suited for woods riding. With 6 psi in the fork and the Pro-Link damping set to position No. 2, the XR hustled my 160 pounds down the trail without straining, slaloming effortlessly between the trees. The new fork, though, is still not a match for the plush Pro-Link and is the first part of the package to limit your speed. Thanks to improved shifting, the hillclimbs that momentum-sapping missed shifts used to make nearly impossible could be conquered without problem. Over whoops that made riders of last year's XR200 wince, the R-type's rear end absorbed thumps without protest and the bike did not kick from side-to-side in sympathy, despite its short wheelbase. And even though the XR's lack of sheer horsepower makes it difficult to hold the front wheel up for long, you quickly settle into a relaxed rhythm over whoops, while riders of many other bikes are reduced to dog-meat by spine-compressing impacts every 50 yards.

continued

Racer's World

BRACE YOURSELF.

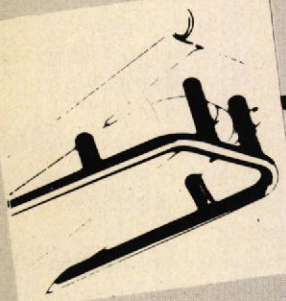
The SUPERBIKE FORK BRACE. The eliminator of fork flex. Greatly improves handling and line holding – a must for Cafe-Superbikers. Enhances touring pleasure by increasing stability and minimizing wobble over grooved pavement. Constructed from Chrome-Moly tubing and now perfected for most Japanese Fours, RD400 and SR500, BMW.



HOLD YOUR HORSES.

Reduce frame flex and improve total frame rigidity on big bore Kawasakis with the Racer's World KAWASAKI RIGIDITY KIT. Easily installed without welding or major tools, this unit replaces light duty stock mounts and bolts, turning Kawasaki 900 and 1000s into superhandling superbikes!

CONTROL YOUR SWING.



The INFORCER swing arm stabilizer kit. Strengthens stock swing arms to give race-competitive handling at a fraction of race component cost. Simple welding installs the Inforcer on BMW and Kawasaki 900 & 1000s. Minor frame modifications allows attachment to Suzukis.

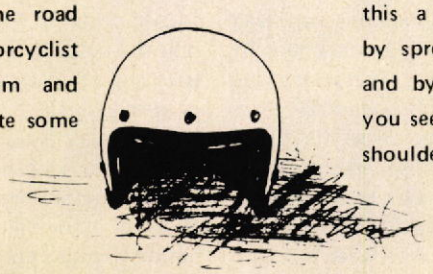
Racer's World performance products are available direct by mail. Send name, address including zip code and motorcycle make, model and year. Certified Check, Money Order, VISA or Mastercharge number including expiration date only, CA residents add 6% tax.

Fork Braces – $59.85
The Inforcer – Swing arm kit – $59.95
Kawasaki Rigidity Kit – $94.50
Suzuki Rigidity Kit – $87.95

Racer's World, 825 Arguello, Redwood City, CA. 94063 (415) 364-5082
Racer's Supply, 6959 Van Nuys Blvd., Van Nuys, CA. 91405 (213) 873-6100

HELMET ON THE SHOULDER

A helmet on the shoulder of the road indicates a motorcyclist has a problem and would appreciate some assistance.



Please help to make this a universal signal by spreading the word and by stopping when you see a helmet on the shoulder.

Still, when you bring the XR200R out of the forest shadows to the full sun of a dusty fireroad, it rapidly wilts. The diminutive thumper does not have the instant snap or the top-end power to make up time in the open. You can have lots of fun holding the throttle wide open, but plenty of two-strokes will pass you before you reach the thick woods again.

While the XR gives up speed to the two-strokes on fireroads, it doesn't give up any of the features necessary to make time from checkpoint to checkpoint. The riding position is full-size, although the footpegs feel a little low. All the right details are present: great grips; a folding tip for the shift lever; a lateral-pull throttle; and a toolbag flexible enough for over-stuffing (although the cinch strap isn't positioned correctly for tying down tools). The tires work well, and a patented catch-slot on the end of the swingarm simplifies axle location for speedier tire changes.

In this configuration, the XR200R completes the logical evolution from playbike to enduro bike. And yet, because it's true to its heritage as a grins-only machine, the XR200R is utterly predictable on the trail. A two-stroke might be better when pure speed is called for, but the R-type's woods sense makes it a competitive choice for the obstacle-ridden trails of true enduros. Maybe the XR200R will flinch first in a match with a two-stroke, but it doesn't shrink from the confrontation.

The XR200R holds further significance for the way it anticipates the wholesale conversion to four-stroke enduro bikes. Air and noise emissions requirements have compromised many two-stroke off-road bikes—as engineers will privately admit—and they slowly will be driven from the woods as a result. Four-strokes will remain—but the XR200R proves that we won't have to resign ourselves to a future filled with BSA Victor 441s as a result. •

Charting the Changes

Engine: The top end remains unchanged from the XR200.

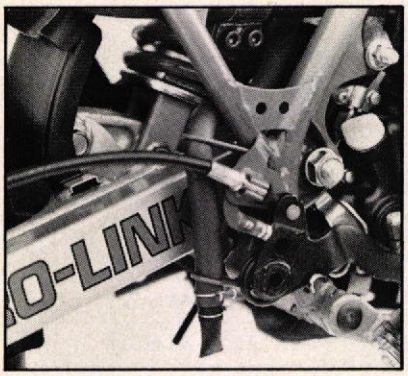
Drivetrain: The number of engagement dogs is increased on fourth and fifth gears; sixth gear engagement slots are lengthened. The gearshift plate is modified to prevent binding and shift forks are reshaped to prevent contact with the shift drum during gear changes.

Suspension: Stanchion tubes are 4mm larger in diameter, now measuring 35mm, and use air as well as a coil spring. New triple clamps mount the fork legs 9mm further apart for improved rigidity. Pro-Link rear suspension replaces the old twin-shock design and provides 2.2 inches more wheel travel. The shock has four-way adjustable rebound damping and is linked to a swingarm which rides on needle roller bearings.

Brakes: Full floating rear brake has been replaced by a fixed backing plate.

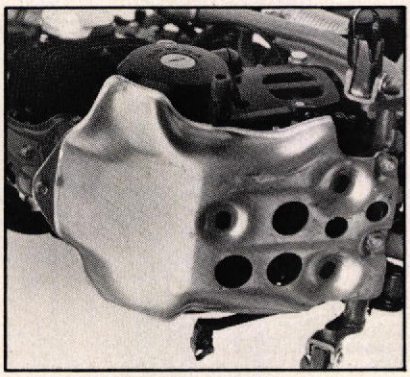
Tires: Front tire changed from a 2.75x21 to a 3.00x21. IRC tires are replaced by Bridgestones.

Details: Gas tank is now plastic instead of steel. Plastic fenders are wider. Handlebar is higher and has more pullback. Lateral-pull throttle replaces a straight-pull version. The tool bag no longer uses a plastic base. Front axle diameter is increased 3mm to 15mm. Rear axle diameter is increased 2mm to 17mm. The rear wheel features quick-detach mounts. Tripmeter reset knob is now flexibly mounted. An additional muffler and airbox silencer are included for California off-road operation.



A clutter of cables and hoses

Not very pretty but functional.



Giant aluminum sump shield

Low-cost engine insurance just in case.

Honda's extruded aluminum swingarm declares the single biggest change to the XR

Pro-Link's rising rate geometry improves the XR at a single-shock stroke

Ride Review

• I'll admit I was fooled at first. I thought the XR200R was just another small motorcycle for riders who were not ready for a big bike. You know, something that looks the part but won't get you into trouble. Well I was half right—the little Honda won't get you into trouble, but it certainly isn't a small motorcycle. It isn't physically large, but Honda's little 200R has the biggest heart I have ever seen.

No matter where you take this tiny trailer the motor just keeps pumping on. Up hills and through sand, the XR is like a big thumper—you can't stop it. And because the bike is so light and the rear suspension is so good the Honda is never a handfull. I admit I was wrong. The XR200R is not just a small motorcycle. This little bike is for riders who have gone beyond the monster thumper.

—David Dewhurst

• Forget about "serious" four-stroke dirt bikes. You know, the ones with pistons the size of trash cans and a problem that only weight-watchers could cure. Honda's XR200R is proof that a lightweight, small-displacement four-stroke is capable of serious business in the dirt.

The XR still is a little underpowered for my taste, but with its lightweight chassis and excellent suspension, I can ride the thing WFO all day long and really feel comfortable with the way it handles while I'm squeezing every last pony out of it. And what a relief it is to ride a thumper that starts on the first kick—without having to find TDC.

So if you're thinking four-stroke and are convinced that a big-bore sled is the only machine for you, just remember that bigger doesn't necessarily mean better anymore. *—Mark Diotte*

• Honda's XR200R is hardly a practical motorcycle for the type of riding that I prefer. Gonzoing through the hills, and even play-racing, requires a bike with stiffer front and rear suspension and at least enough horsepower to get me out of half the situations that I typically get myself into. Plus, the XR's physical dimensions make me feel like Wilt Chamberlain on a Big Wheel.

But, since when is motorcycling a practical pastime? Self-expression and individuality aside, the bottom line has always been fun. And scored on that basis alone the XR gets an A-plus. Low-speed maneuvers and zero-rpm stunts can be just as challenging as anything you can do on a race-bike and, much of the time, more enjoyable. The tough part is going back to a practical motorcycle after riding Honda's XR200R grinbike.

—Ron Lawson

Continued

Honda XR200R

SPECIFICATIONS:

IMPORTER: American Honda Motor Company
100 West Alondra Boulevard
Gardena, California 90247

CATEGORY: enduro

SUGGESTED RETAIL PRICE: $1498

ENGINE

Type ..... four-stroke vertical single
Valve arrangement ..... single overhead camshaft
Bore and stroke ..... 65.5mm x 57.8mm
Displacement 194.8cc
Compression ratio 10.0:1
Carburetion ..... one 26mm Keihin slide/needle
Air filter ..... washable oiled foam
Lubrication ..... wet sump
Starting system ..... primary kick with automatic compression release
Ignition ..... CDI
Charging system ..... none; direct lighting

DRIVETRAIN

Primary drive ..... straight-cut gears; 3.333:1 ratio
Clutch ..... wet, multi-plate
Final drive ..... #520 chain (5/8-in. pitch, 1/4-in. width); 3.846:1 (13/50) ratio

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.769	35.495	2.1
II	1.941	24.881	2.9
III	1.450	18.587	3.9
IV	1.130	14.485	5.1
V	0.923	11.832	6.2
VI	0.785	10.063	7.3

SUSPENSION/WHEEL TRAVEL

Front ..... air-spring, 35mm stanchion tube diameter/9.0 in. (230mm)
Rear ..... Pro-link, 20mm spring preload adjustment/10.2in. (260mm)

BRAKES

Front ..... drum, single-leading shoe
Rear ..... drum, single-leading shoe, cable operated

TIRES

Front ..... 3.00 x 21 Bridgestone Gritty ED-3
Rear ..... 4.10 x 18 Bridgestone Gritty ED-6

DIMENSIONS AND CAPACITIES

Weight ..... 228 lbs. (103kg)
Weight distribution ..... 45.2% front, 54.8% rear
Wheelbase ..... 53.5 to 54.5 in. (1359 to 1384mm)
Seat height ..... 35.2 in. (894mm)
Handlebar width ..... 33.3 in. (846mm)
Footpeg height ..... 14.5 in. (368mm)
Ground clearance ..... 12.5 in. (318mm), at skid plate
Steering head angle ..... 28.4 degrees from vertical
Front wheel trail ..... 4.9 in. (125mm)
Frame ..... tubular mild steel, single front downtube
Oil capacity ..... 1.2 qt. (1.1l)
Fuel tank ..... plastic, 2.2 gal. (8.5l), including 0.9 gal. (3.5l) reserve
Instrumentation ..... speedometer, tripmeter resettable in tenths
Top speed (observed) ..... 64 mph (103 kph)

WARRANTY: 3 months unlimited

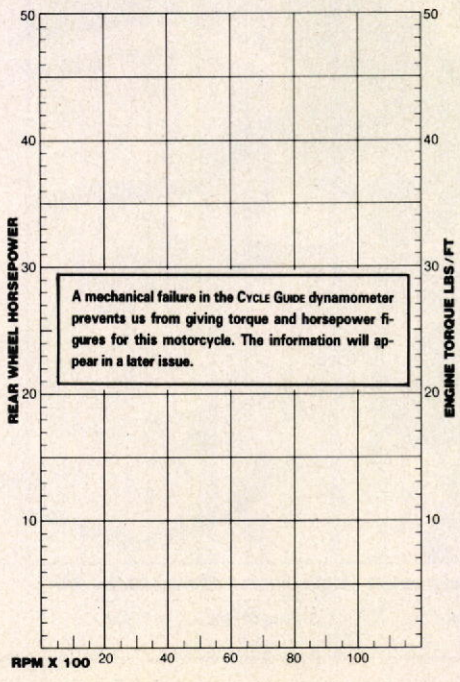
AVAILABLE COLORS: red

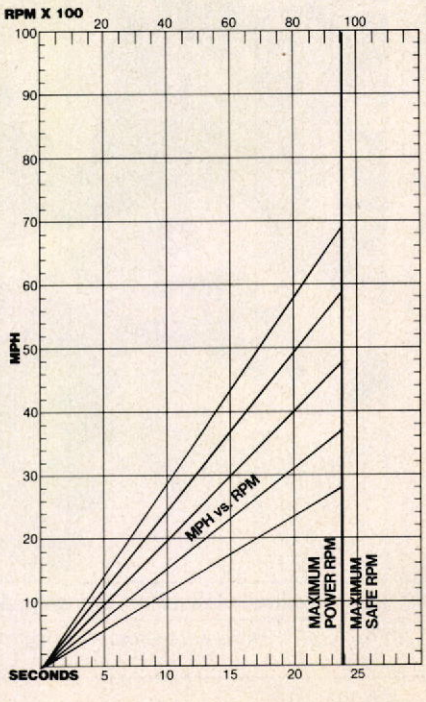
All weights and measurements are taken with machine unladen and fuel tank empty.

COMPARATIVE TEST DATA:

Make & Model	Horsepower	Wheel Travel Front/Rear, in.	Weight (fuel tank empty), lb.	Weight bias Front/Rear percent	Transmission, number of speeds
Honda XR200R	NA	9.0/10.2	228	45.2/54.8	6
Honda XR200	NA	8.0/7.8	219	43.5/56.5	6
Kawasaki KDX250	24.3	9.9/11.0	248	46.4/53.6	6
Husqvarna 250WR	20.9	9.5/10.3	248	45.6/54.5	6
Kawasaki KDX175	15.3	9.6/9.8	222	46.4/53.6	6
Kawasaki KLX250	15.2	9.9/10.5	239	46.1/53.9	5

PERFORMANCE:





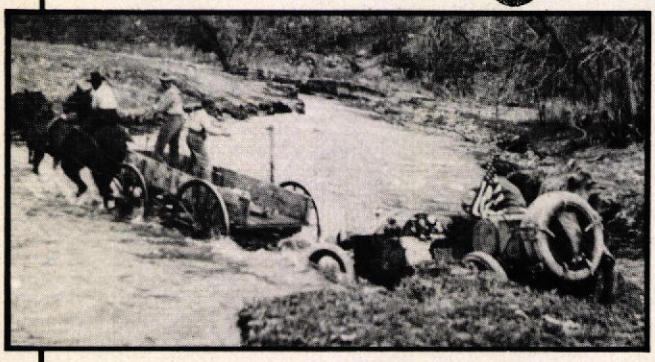
The Hard Way

To Cannonball Baker, endurance racing meant something special—dogs, mud, rivers . . . and no roads.

BY TED WEST

RESEARCH BY DAVE DIXON

All right, now, pay attention. This is important. I want you to think just for a moment about doing things the Hard Way. No, no, I don't mean shooting craps—I mean *doing things the Hard Way.* Like cutting off the little finger of your right hand so's to get at the change in your jeans pocket quicker. Like putting thumbtacks in your sprouts-and-avocado sandwich to be sure of getting your Minimum Daily Requirement of iron. Like treating your "occasional irregularity" by swallowing a cherry-bomb.



That's it—the *Hard Way.*

Okay, now I want you to think about Erwin George Baker. You might never have heard of Erwin George Baker, but that's all right, you've heard of the *Hard Way.* He invented it.

Continued

PHOTOGRAPHY COURTESY INDIANAPOLIS MOTOR SPEEDWAY CORPORATION

SOME RESEARCH MATERIAL PROVIDED BY *ROAD RIDER MAGAZINE*

It's hard to know what to say about a guy like E.G. Baker (um, that's *Cannonball* Baker, to you). He did so many amazing, crazy, terrifying, impossible things in his lifetime that maybe the best way to explain him is simply to list some of those things, Such as:

—In his lifetime, Cannonball Baker set 143 different world distance and speed records.

—Cannonball Baker held every world motorcycle speed-distance record for 12 hours, 24 hours, 500 miles and 1000 miles.

—Cannonball Baker set every official over-the-road world speed record from 200 miles to 1028 miles.

—Riding a Neracar, he set the transcontinental fuel economy record (conservation geeks take note) by covering 3364.2 miles from New York to Los Angeles in seven days, five hours, 28 minutes on 45 gallons of gas and—honest—45 pints of oil!

—In 1926, Cannonball Baker raced across the country in five days, 17 hours, 36 minutes, driving a fully-loaded Buick-powered two-ton tank truck filled with Atlantic seawater, to be donated to the everlasting benefit of San Francisco Bay.

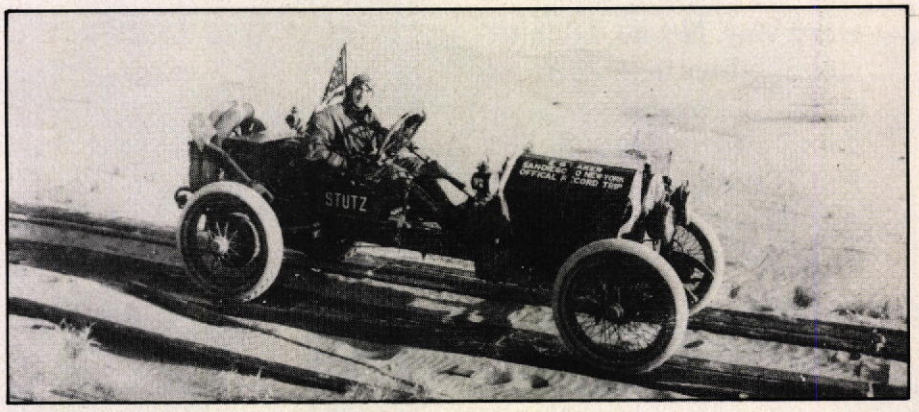
—By 1935, when increasingly organized state law enforcement agencies took an increasingly dim view of such activities, Cannonball Baker had crossed the United States on transcontinental record runs a total of 106 times.

—In 1941, Cannonball Baker established his last official transcontinental record which, like his first transcontinental record set in 1914, was accomplished on a motorcycle. However, it's worthy of note that in 1941 Cannonball Baker was 59 years of age. . . .

Yet somehow all these facts don't quite make the point. I mean, records are records are records, *ad nauseam*. And since most of these records were set in the Teens, Twenties and Thirties, they simply don't seem to mean much viewed from the perspective of 1981. Besides, they don't get at the heart of the matter, something that still means something to motorcyclists—the *Hard Way*. Perhaps, then, we should start at the very beginning.

In the first decade of the century, the practical distinction between cars and bikes was simple, really only a matter of the number of wheels. Otherwise, they were *both* the *Hard Way*. . . and the horse-and-buggy was the *Easy Way*. For one thing, you don't have to "start" a horse, all you have to do is hit it with a stick. In the first decade of the century, the same technique was applied to starting gasoline engines, but only after all else had failed.

And all else was *constantly failing*.



The notion of crossing the United States on gasoline power, then, whether by car or motorcycle, was decidedly the *Hard Way*. It wasn't simply because engines had a way of failing, either. No, far worse than that, there were virtually no roads! In 1903, a dirt path with deep wagon ruts was a superhighway. "Secondary roads" consisted of deep sand, alkali dust and horse paths two-hooves wide, and at the first report of rain, every wheeled vehicle in the Union promptly sank up to its wallet in the ooze. In the Great American Desert there were no paths at all and the only alternative was a bone-jarring ride along the railroad ties for hour after mirage-blurred hour.

Nevertheless, in the spring of 1903 two separate gasoline-powered expeditions set out from San Francisco, headed for New York. The better-publicized of the two was the 20-horsepower Winton automobile driven by Jackson and Crocker, which arrived in New York on July 26, 1903 after a passage of 63 days. Virtually unnoticed, however, was the arrival 20 days earlier of one George A. Wyman on a 1½-horsepower Yale-California motorcycle. Not only had Wyman made the first gasoline-powered transcontinental crossing in history, he'd done it alone on a motorcycle, and had made the trip in fully 13 days *less* than the much-ballyhooed automobile. (They've *always* had a better P.R. Department.)

It would be three more years, however, before E.G. Baker, acrobat and sometime boxer residing in Indianapolis, purchased his first motorcycle. Then on July 4, 1908, after two years of apparently innocent sport riding, Baker went to the motorcycle races at Crawfordsville and "just for a joke," wangled his way into the field of professional riders. "Once I signed up," he said years later, "I couldn't back out, because I was number 13 and I didn't want anyone to think I was superstitious." Instead of backing out, Baker placed second in his heat and went on to win the feature. He was hooked.

"I knew I had a lot to learn," he recalled of that first race, "because all the distance I gained in the straights, I lost in the turns. In those days racing motorcycles had running boards and the rules would not permit 'hot-shoe' foot dragging—and I discovered that when I won, the edge of my left running board was worn paper-thin."

Imagine that.

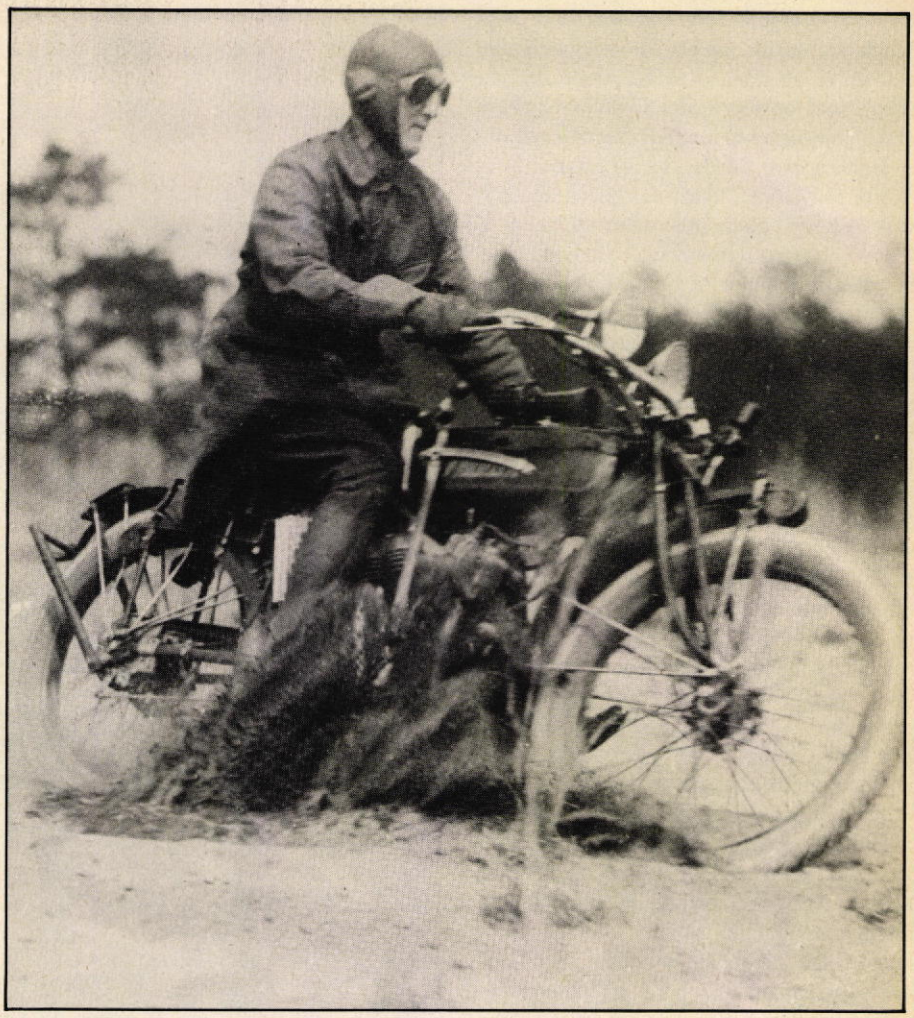
In August, 1909 some enterprising local Hoosiers opened a 2.5-mile dirt oval grandiosely named the Indianapolis Motor Speedway, and the facility's first competitive event was to be a 10-mile national championship motorcycle race. Our own Mr. E.G. Baker entered immediately. Though the Speedway was paved in brick two years later to reduce dust for the spectators' comfort—and thereafter became primarily an automobile racing facility—history nevertheless records that the first man ever to taste victory at the Indianapolis Motor Speedway, winning this same 1909 10-mile national championship motorcycle race, was none other than E.G. "Cannonball" Baker.

But "Bake," as he was known, was still hunting for the *Hard Way*. Sure, racing was fun, but it didn't *last long enough*. So in 1912, he set off on a goodwill tour for Indian Motorcycles that logged 14,000 miles through the U.S., Cuba, Jamaica, Panama and practically every other source of fresh bananas in the Western Hemisphere. The tour lasted long enough, but now the problem was, it didn't go *fast enough*.

At last, though, on May 3, 1914, Cannonball Baker had finally located the *Hard Way*. On that day, promptly at nine in the morning, Baker left San Diego on a seven-horsepower, 61-inch vee-twin Indian two-speed with "Cradle Spring Frame," determined to break the existing transcontinental motorcycle record of 20 days, nine hours, one minute. Riding through the mountains along the Mexican border just east of San Diego, Baker encountered regiments of U.S. infantrymen, heavily-armed and on the alert. Since Pancho Villa had raided across the border and in April, 1914, Uncle Sam had occupied Veracruz, tensions along the border were high. The sight, therefore, of this moonman highballing along by himself on a motorcycle was the Great Event of the Day. The soldiers greeted Baker wildly as he raced on eastward.

Down on the desert floor once again, Baker used an old Indian trick to slake his thirst, holding a pebble under his tongue so he wouldn't have to stop too often for a swig of water. Near the end of the first day he was caught in a blinding sandstorm and had to ride the railroad ties 64 miles into Yuma. On the second day out, riding across the Arizona Desert to his next fuel stop at Agua Caliente, Baker ran out of gas and had to push his bike four miles through deep sand with the temperature reading 119 degrees in the shade.

The third day out found Baker in Phoenix. Arizona had been granted statehood



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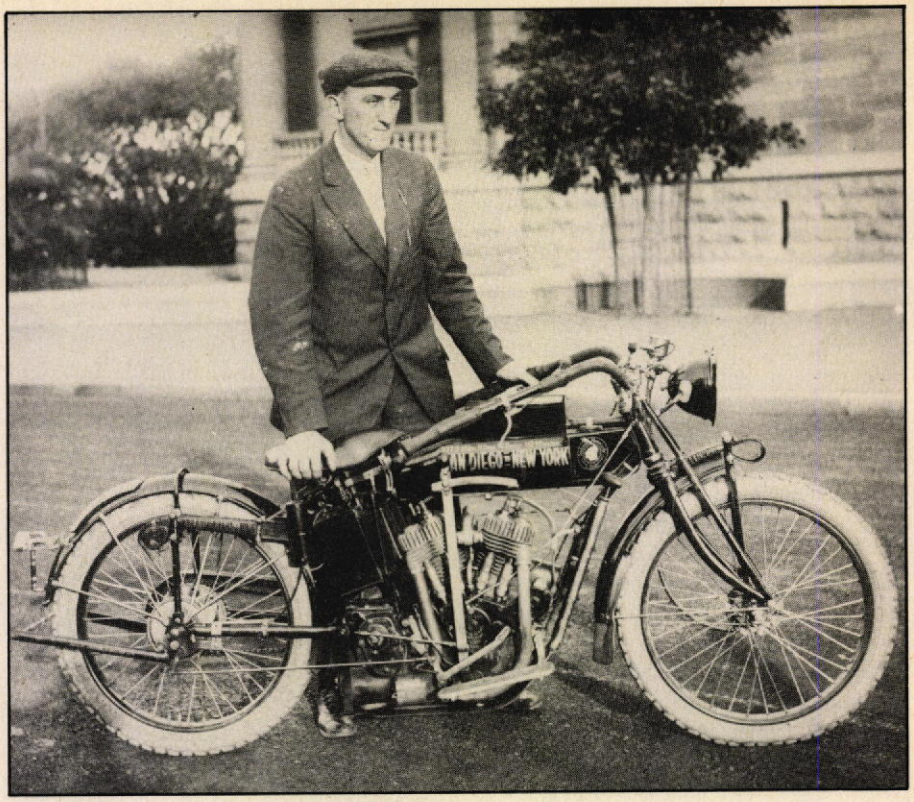
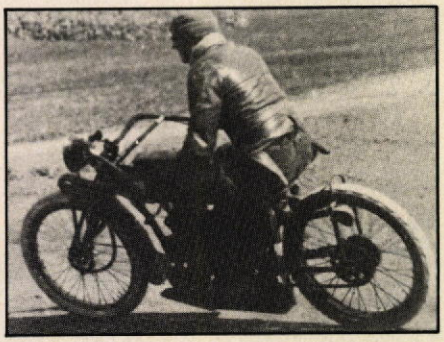
only two years before and was still very much a frontier society, so when people saw the small sidearm Baker was carrying, they could only grin derisively. But then one Doc Boudreau made Baker the gift of, in Baker's own words, "a real 'cannon'—a Smith & Wesson .38 cal. Long, for which I was mighty glad afterward. The gun looked all right to me because it had three notches on the butt of it. . . . While coming through the Indian reservation at Fort Apache I was given a big welcome by more dogs than Indians, and I had to put this gun to use. These dogs are worse than wolves, and I had to drop two of them in their tracks in order to get by." Continuing across Arizona to New Mexico, Baker rode from 250 feet below sea level to mountain snows at 9650 feet above sea level, but still the faithful Indian vee-twin plunked on and on. It wasn't until about 80 miles east of Santa Fe that Baker ran into his first serious obstacle, a raging mountain stream that almost stopped him. He lost a day trying to find a ford and finally had to push the bike through the water single-handedly before continuing eastward.

Arriving on the Great Plains, it seemed to Baker that his troubles were over—from here on it would be clear sailing. But racing along outside of Ellsworth, Kansas, a huge shepherd dog took chase. "This dog seemed to have a great desire for the Goodyear tire on my front wheel," Baker recalled, "but my desire was still greater. The dog took a fall out of me which put me in bad shape, as I slid along the road on my elbows and knees. I kept the tire and the dog lost his life. At Ellsworth I had a good meal, then sent for a doctor to get bandaged up, and went to bed."

Crossing Illinois, Indiana, Ohio and Pennsylvania, Baker battled the ever-present deep mud, narrowly avoiding heavy thundershowers that would have seriously delayed—perhaps even scrubbed—his record run. But finally, on May 14, 1914, a guide led Baker to the ferry terminal at Weehawken, N.J. where he crossed the Hudson. Just past midnight, after 3378.9 miles, 1027 of them in desert, 232 in mud and 64 down the back-breaking railroad ties of the Atchison, Topeka & the Santa Fe, E.G. Baker arrived at 42nd and Broadway. The crossing had taken 11 days, 12 hours, 10 minutes (allowing for the three-hour coastal time difference), which worked out to an average speed of about 12.25 miles an hour. But it was enough to break the former record by just less than nine full days, and Baker immediately became a national sensation. A New York newspaper writer dubbed him the "Cannonball Express" and the name stuck.





Years later, Baker even had it copyrighted.

Having proven that he could survive the *Hard Way* once, a lesser man might well have retired then and there. Not Cannonball Baker. Indeed, he had found his true calling in life and this was only the first of myriad other close encounters of the *Hard* kind. "Many say my capacity for speed is overshadowed by an almost incredible endurance," he wrote years later. Again, coming from a lesser man, this would sound merely boastful. In Baker's case, it was simply a statement of fact. But let's let him prove that in his own words.

"On one transcontinental automobile trip, I left Los Angeles at midnight and drove 44 hours without sleep before arriving at Las Vegas, New Mexico, 1200 miles distant. Following a 60-minute cat-nap, I turned an additional 430 miles to Dodge City, Kansas. After resting four hours, I made Kansas City, Missouri, another 400 miles. From there on the same sort of pace was held through to New York City—all with nine and one-quarter hours of sleep for the entire cross-continental trip."

Wait, there's more. . . .

"One incident occurred on a three-day motorcycle race from El Paso to Phoenix. At the beginning of the second day there were two of us way ahead. Speeding along close to the lead man I was just getting ready for a spurt when the front wheel jammed the taproots of a dead tree and I was tossed over the handlebar. Sliding along the ground and into a mesquite bush, a thin twig was stabbed into my arm, running about five inches under the skin. It stuck so fast that it took a pair of plyers and all the nerve and elbow-grease I could muster to yank it out. I was 50 miles from the nearest town; so there was nothing to do but let the cut bleed . . . and ride like blazes! It was pretty tough going the next day with that sore arm, in spite of the fact that a doctor in the town where we checked in for the night patched it up as best he could. About noon I passed the lead man

mending a puncture by the roadside, crashed on through and beat him."

Baker's toughest ride ever?

"All long-distance rides are tough. I got my worst punishment, however, the time I was petrified in Australia. Petrified is the only word I can think of to describe it. I hung up a new 24-hour motorcycle record at Mortlake over a macadam course and from one o'clock in the morning until seven-thirty the rain came down in buckets. My leather suit got soaked and gradually melted to the consistency of messy glue. After that, the rain stopped and a hot January sun turned on all its burners. Riding in a cramped position, crouched low over the handlebar, the leather began shrinking and getting tighter. After a few hours, I was practically baked into what might as well have been a suit of armor. When they lifted me off the cycle at the end of the run, I was as rigid as a mummy. They had to cut the suit off of me."

Cannonball Baker on luck:

"While I was often lucky, you mustn't think I always got the breaks. Bad breaks add to the toughness of an event. I remember in 1917 I was trying to break the transcontinental motorcycle record. At Williams, Arizona, heading west, I was 48 hours ahead of the old mark with only 524 miles to go. It looked like a cinch. A few miles farther along, I came to a piece of road that was being repaired and had to make a nasty detour over a rocky patch of ground. I was whizzing along faster than I should have been, when one of my wheels slipped on the edge of a gully and I was tossed into a pile of stones. My ankle was almost torn out of its socket. Three doctors, out there patching up their weak lungs, took me right in hand, or I might have been a cripple today. I was in bed for a week and on crutches for six months."

Cannonball Baker defines the *Hard Way*:

"In Cincinnati in 1916, I hung up the world's 12-hour, 500-mile, 24-hour, and 1000-mile motorcycle track records. One of the narrowest of many narrow escapes occurred when I was shooting for the 24-hour record. It was about one o'clock in the morning, with the race well along and the bunch of us tearing around the track at the stiffest pace we'd set up to that time. I was far enough ahead that I thought I had things pretty well sewed up. The night was muggy and it seemed that millions of gnats and other flying insects had settled down in the racing bowl—the air was full of them. I was reeling off better than 80 miles an hour and they were smacking against my goggles like raindrops in a Nor'east gale. After awhile I could hardly see, so plastered were my goggles. 'Just one more lap,' I thought, 'and I'll slow up for a clean pair of goggles.' So I cocked my head sideways, looking past the glasses out the corner of my eye. I had hardly turned my head when a big gnat smashed me plumb in the eyeball. It couldn't have hurt more if someone had jabbed me with an ox goad. My hands jerked from the pain, and for a fraction of a second I lost control. The motorcycle shot up the incline like a rifle bullet and banged into the guardrail. I grazed the rail, turned a half-somersault and went shooting feet-first off into space.

"For a second things went black. Then I came to. I had landed on some tall grass and sod, and as they found out at the hospital, wasn't much hurt, except that I was blind as a bat in the eye the bug had hit. I went to sleep for about an hour, but woke up as one of the pit boys came running in.

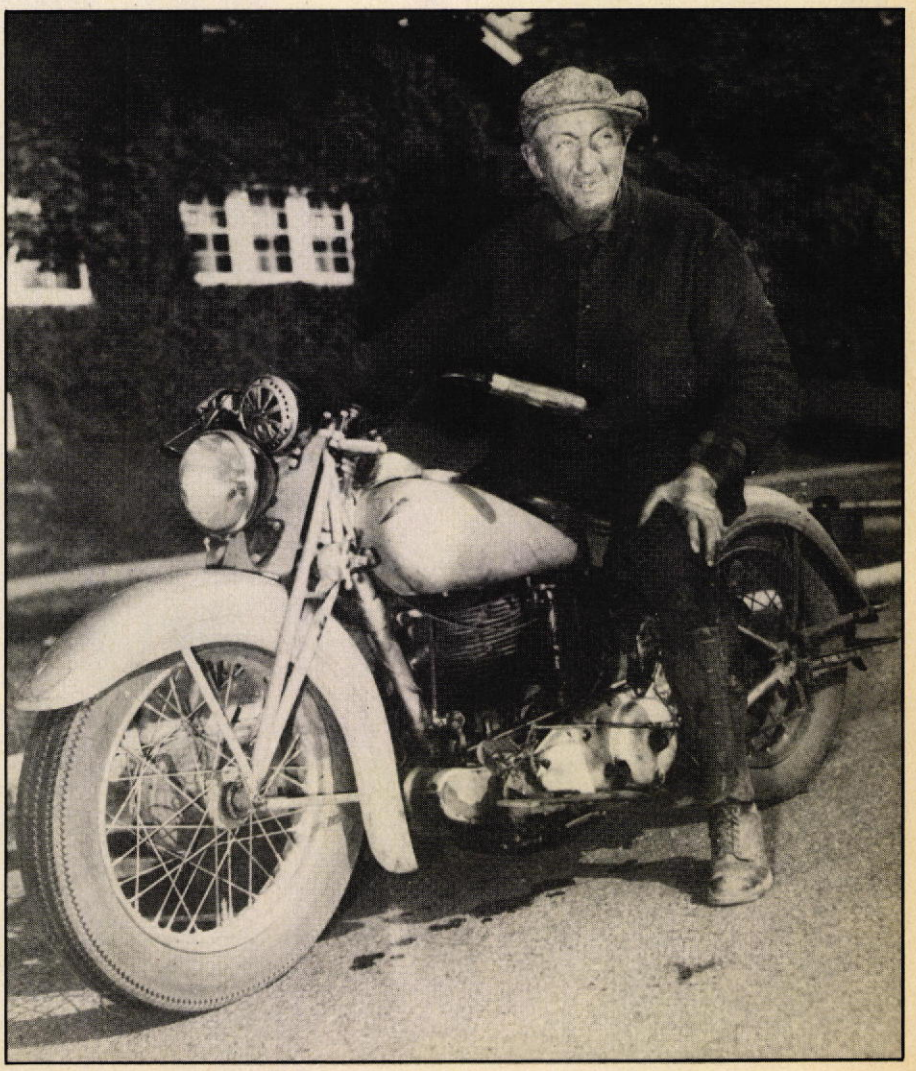
" 'Bake,' he panted, 'you're still 228 miles ahead of the record. If you could make only 60 miles an hour from now on until daylight, you'd cop the race. We've gone over the old machine and she's in shape again.'

"Right there the doctor butted in. 'Man alive,' he protested, 'you can't ride anymore in this race, you're stone blind in one eye!'

"I got up and stretched. I was sore, but sound. 'Quit fussing and give me my specs,' I said, 'I'm going for a ride.'

"Getting back astride the old war-horse, I clocked off 68 miles an hour up to daybreak. Then I hit it up to 75 miles an hour, which pace I was able to hold through to the end of the race. About nine o'clock my sight had come back and that helped a lot. At the finish I found that I'd done 1534 ¾ miles in 25 hours."

The *Hard Way*. Erwin G. Cannonball Baker invented it, developed it, practiced it as thoroughly as any racer in history. And despite all the mortal chances he took in his lifetime, covering more than 3,000,000 miles at racing speed in one kind of competition or another, he died in retired leisure on May 10, 1960, at the age of 78. His heart, and his time, simply gave out. But by then the point had been made for all to see; the *Hard Way* had never been a match for Cannonball Baker. •



ROAD TEST:

Kawasaki GPz550

The pocket rocket sprouts a warhead.

BY RILEY THARP

If you're the kind of rider who believes roadracer-like purity makes a great street bike, your day has come. And if duct-taped boots are a part of your street-riding wardrobe, it's time to come out of the closet. The GPz550 is here, and it's part Lotus, part sabre jet and all fun.

Enthusiasts who are dedicated to sport bikes have had reason to feel a little neglected during the past few seasons. Oh, there have been exciting bikes in the showrooms, but very few all-new machines have been specifically targeted at the café crowd. Instead, manufacturers have been busily tailoring new models to fill every conceivable gap in the burgeoning factory-custom market, so knee-draggers were left to shuffle dejectedly through showrooms packed with the latest Ameri-cruisers.

But for 1981, in a subtle twist of irony, the very existence of special-style bikes has brought about renewed attention to the sport rider. That's because specials are now a large and self-sustaining market—in effect no longer special at all. The wheel has turned so it is now more economically practical for manufacturers to go after smaller buying groups like the café crowd. It's almost as though sport bikes are destined to be the specials of the Eighties.

Kawasaki is the company you might expect to be among the first to provide new machinery geared just for sport riders. After all, Kawasaki built its reputation on wild motorcycles: the H-1, H-2 and the fabled Z-1. And the 1980 Kawasaki line included a perfect platform from which to build a pocket rocket. When we tested the KZ550 in 1980, we touted it as a middleweight superbike and the fieriest ride since the late Honda CB400F. Even last year Kawasaki foreshadowed the GPz by offering a color-matched quarter fairing and a café seat as options for the standard 550. The Gran Sport package added visual flash to the 1980 model, but for 1981 Kawasaki decided to boost the tiny Four from the inside out.

Pumping up the engine is the logical place to start building a killer middleweight, and Kawasaki has applied some old-fashioned performance trickery to build a hotter fire in the hold. Pistons from the standard 550 have given way to units with higher domes, and that raises the compression a half point to 10:1. New cams have 0.7mm more lift as well as longer duration than the standard's version. Carburetion consists of the same 22mm TKs found on the standard model but with larger main jets. The intake charge flows past reshaped intake valve seats and the exhaust exits through head pipes with 3mm-larger inside diameters. All the extra

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breathing results in stronger engine performance at high revs.

But boosting power doesn't come cheap. Kawasaki had to run the revised engine through the EPA emissions certification procedure—an expensive requirement. And the heat generated by the tiny hypermotor also requires a factory-fitted oil cooler to insure that the engine doesn't bake in its own fire. The new-found power also comes at the expense of some low-rpm grunt, so the GPz's six-speed gearbox is often pressed into service.

And building a proper sport bike requires more than just horsepower. Total performance requires a balance that extends all the way to the details, and Kawasaki has provided the GPz with the right detailing for brisk riding. The chassis, which works so well on the standard 550, is more than up to the task of street-racer riding. The only changes made for the GPz version are the addition of brackets for the oil cooler and the substitution of cast aluminum footrest/muffler mounts for the tubular pieces found on the standard model.

While the chassis is essentially the same as the standard model's, braking on the GPz has been upgraded considerably from the KZ. A second disc aids braking up front, and the KZ's rear drum gives way to a disc on the GPz. Stopping is superb on the GPz, but the rear disc is probably more of an attention-getter than a necessity, and it is in part responsible for the GPz's 23-pound weight disadvantage compared to the standard 550.

All the right specifications might go unnoticed if they weren't wrapped in the right styling package, and in that respect the GPz is a winner just standing still. The flashy 550 shared the *CG* garage with, among other machines, a GPz1100, yet the little red roadrunner was never overshadowed by its big brother. From its Firecracker Red paint to its tinted bubble, the GPz550 screams *fast*.

Performance promised by the styling is delivered in abundance by the 550. The GPz is a thoroughly capable street performer. You would naturally expect the bike to be a backroad scratcher, but you might be surprised by its abilities in daily service. Only a couple of traits remind you that the GPz is a sport bike at heart, and you face the first reminder when you start the bike. "Cold-blooded" is a charitable description of the reluctant starting and warm-up of the 550. Full choke is necessary even on warm mornings, and the choke is so sensitive that it's hard to find a setting between a wildly revving engine and a gasping, stalling one. A cold start on the GPz is one occasion where you're better off just waiting patiently before attempting to ride. Still, unlike some other EPA-plagued bikes, the GPz does warm up eventually; and when it's warm it exhibits smooth, linear throttle response to all but the most severe butterfly-cracking.

Once you're finally underway, the second performance-related concession becomes apparent. The GPz's pumped-up power isn't to be found at low and moderate engine speeds. It's not that the engine isn't smooth and pleasant in the 2000–5000-rpm range, but to extract all of its new-found performance the little four must rev, and it does so willingly way past its 9500-rpm redline. Anytime the GPz's tach reads 5000 rpm or more, the building of power feels linear and predictable, almost like the whoosh of a turbine.

In spite of its cold nature and racy appearance, the GPz still works well as an around-town mount. It maneuvers easily, while the GPz's exciting visual statement makes you feel as if a trip to the corner hardware is a sporting event. And the stares from passing motorists can make you feel like King Kenny at Daytona. Its seating position, far from being a pseudo-racer crouch, though, is a totally natural combination of control locations. There isn't a long gas tank between the comfortable, dual-density foam seat and the low bars, so you only have to lean slightly forward from vertical. Combined with the

Continued

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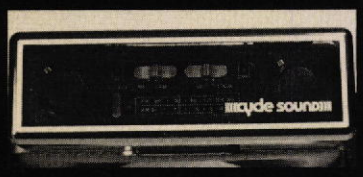

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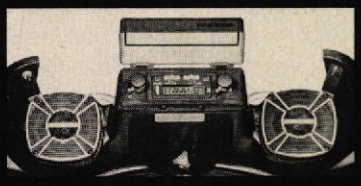

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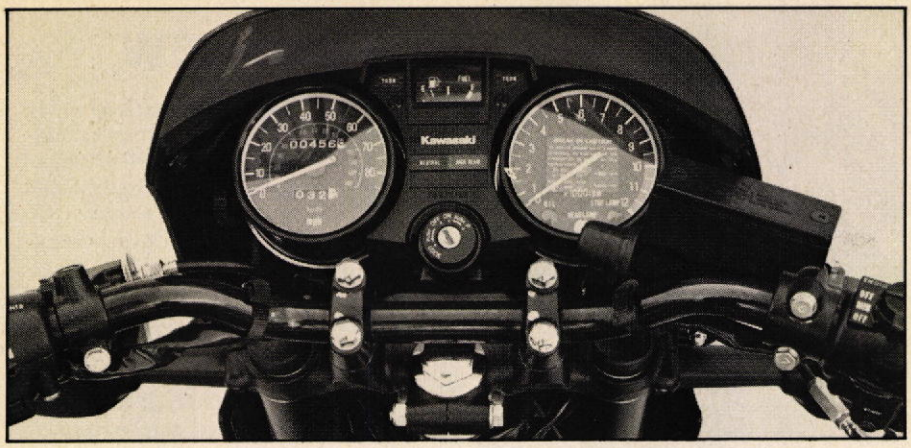
mildly rearset footpegs, this position can accommodate riders of almost any size because it maximizes the use of available space on the compact 550. The rider feels like a functioning part of the bike—in complete, alert control. Another benefit of the European sporting posture is that bumps are no longer transmitted directly up the rider's spine. Rather, they can be absorbed by legs and forearms, and this creates an illusion of a gentler ride than the firm suspension actually affords. The seating position is a triumph of ergonomics for any bike, not just a sport-targeted machine.

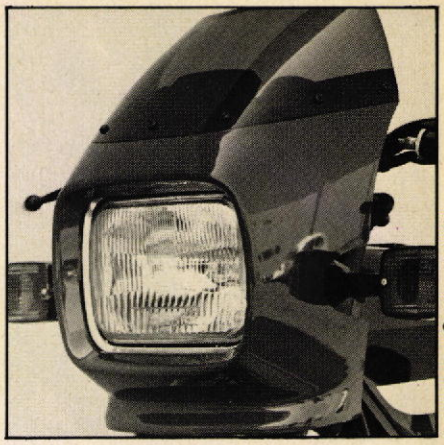
Highway comfort is also enhanced by the GPz's seating position. Since the rider tends to sit forward on the seat, plenty of room is available for a passenger, and the rear pegs are mounted low enough for ample leg room. Once again, in spite of its sporting focus, the GPz550 shows another capability in its desire to gobble up highway miles. But while the miles roll by with ease, the gas supply seems never to end. Our GPz550 recorded an amazing 63 mpg during restrained cruising, and did it carrying two people. Keeping the revs below 5000 rpm, about 60 mph, avoids a mild vibration peak that begins just above that point. The tiny fairing, which does little more than protect the instrument cluster, isn't tall enough to send the wind blast up to helmet level. So, unlike some other fairings, the GPz's bubble doesn't increase wind noise and buffeting, relegating it to the role of an attractive styling device.

Adjustable suspension graces both ends of the Kawasaki, but true to its sporting intentions the settings all fall in a range from firm to firmer. With the fork air pressure set at 12 psi and the shocks on the first or second damping and spring preload positions, the GPz acquits itself nicely as a sport tourer or commuter. Engine noise is unobtrusive, and the 3.8-gallon gas tank can take you 200 miles between stops.

But while the GPz will handle commuter tasks without complaint, it was clearly built for finer things. And when you're ready for those finer—and faster—things, the GPz550 is ready as well. The GPz is so much fun to ride fast that it's almost seductive. Every corner becomes a challenge and every ride is an occasion. As a true sport machine the GPz is an unqualified success.

Bigger-is-better-think can be applied successfully (though not always) to touring bikes and straight-line performers. And current hyperbikes do a fine job in the twisties—for their size. But of all the attributes that make a good sport bike, size is not one of them. What a hyperbike does on





PHOTOGRAPHY © 1981 VIC HUBER

the back roads with brute power, the GPz550 does with finesse. Its brand of surgical precision in high-stress riding situations is applicable over a broader range of circumstances than the unmitigated horsepower of a hyperbike. That really doesn't make the GPz550 concept any better or worse than a large-displacement sport bike, but it makes it different, and very, very good. A bike like the 550 can sometimes make horsepower wars seem gluttonous and unnecessary.

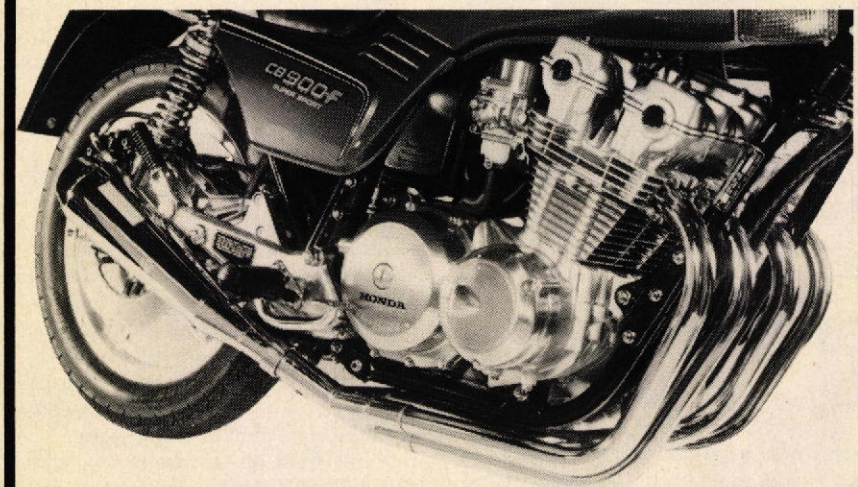
Riding at speed on the 550 is a harmony of engine, chassis, brakes and rider. Steering is light yet stable, and ground clearance is ample for all but the stickiest corners. The breakaway point of the Dunlop tires is predictable, and it occurs beyond the rational limit of street speeds. Power delivery offers no unpleasant surprises, and the transmission always smoothly serves up the proper ratio. Every detail of the bike, from the riding position right down to the tacky grips, works to make you feel comfortable at speed.

In the GPz is a true sport bike with all the sophistication and detailing that the Eighties demand. A quartz-halogen headlight, fuel gauge and accessory wiring harness exemplify the thoroughness of its execution. There are tourers that handle well, and hyperbikes that tour well, and now there is a sport bike of the finest specifications that is sufficiently good to double as a high-mileage urban bike or a sport-tourer. Choosing a machine to fit a sporting riding preference no longer requires sacrificing all other capabilities and amenities. The GPz550 is rolling proof that you don't have to punish yourself with a pounding ride and a fussy engine to have a proper sport bike. It's an honest-to-pavement café ride, but without the bitter aftertaste. Tape up your boots and head for the byways. •

Continued

Dunstall. # One for horsepower. Sounds great. Costs less.

$189.50



Independently tested by Motorcycle Sport magazine the Dunstall 4 into 1 Tuned Header gives a full 30% acceleration improvement. Motorcycle Mechanics magazine tested 16 different makes of headers and said the Dunstall Tuned header 'climbs on to a much higher torque peak – the highest of all the systems'.

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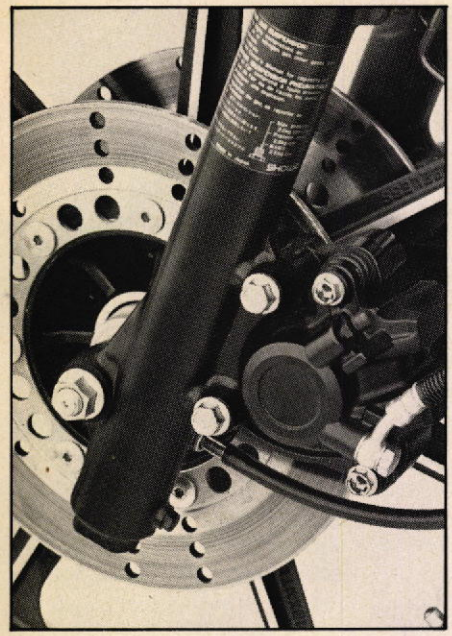
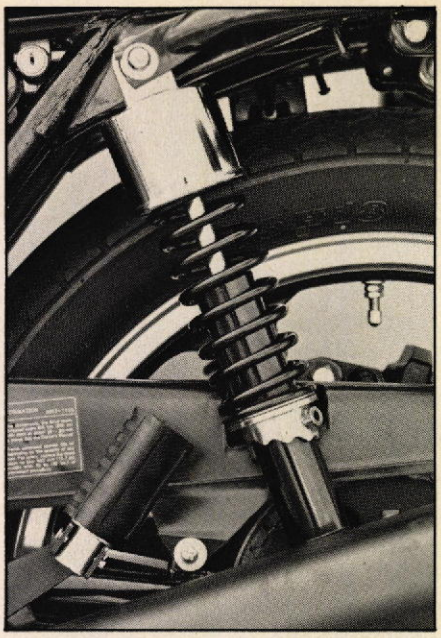


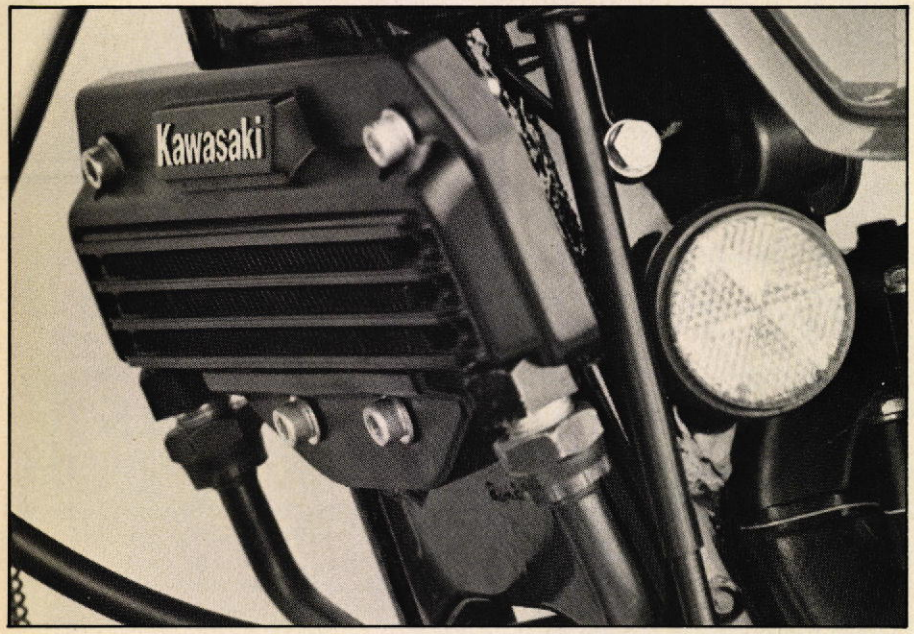
Dual discs improve the GPz's braking

But add to the bike's unsprung weight.



Uprated shocks have four damper settings

Just twist the chrome adjuster ring.



A tiny black oil cooler keeps engine internals cool and makes the bike look hot

Adding sporty style and mechanical stamina to Kawasaki's little canyon racer.

Charting the Changes

Engine: an unchanged KZ550 bottom end gets higher domed pistons to bump compression from 9.5:1 to 10.0:1. Gas flow is increased with a longer duration camshaft, deeper-cut valve seats and a 3mm-larger inside diameter exhaust pipe.

Drivetrain: Rear wheel sprocket is reduced two teeth in size down to 38 teeth. Suspension: Black-painted forks use the same coil springs but gain air assistance. An upgraded rear shock has four-way adjustable damping and a heavier spring.

Brakes: The GPz has twin front discs instead of the KZ's one and a single disc replaces a rear drum brake.

Tires: Dunlop F8 and K130 tires replace F7s and TT100s

Details: A small quarter-fairing is added and, along with other bodywork, is painted in red with silver and black trim. The motor and exhausts are painted black. An aluminum rear footpeg and muffler mount replaces tubular steel. Handlebar is lower. A fuel gauge is added.

Ride Review

• I've got this small space left over in my ideal garage. It's between the perfect play-bike, the enduro bike that never tires me out, the Open-class MXer that satisfies my every whim and a whole slew of street bikes. The machine that fits this space has to nestle in beside the king-hell hyper-bike, a hot-lick profiler's machine and my box stocker. And it's got to slip into the room left over behind the long-haul touring rig. Like I said, it's a small space.

So naturally, I want to fill it wisely. The bike that sits there has to handle everyday tasks without a whimper—but be able to cut loose without getting in over its head. Or mine. It's got to accelerate hard, stop short and handle without a glitch. And it's got to look the part. The GPz550 slips in as if it were built with that particular space in mind. And it even leaves room to close the door. *—Larry Works*

• Let's get a few things straight. I'm six-feet two-inches tall and weigh a healthy 190 pounds. I'm built for big motorcycles with enough power to haul me along at a speed that's exciting. It usually takes at least 900cc to make me feel like I'm riding a real machine, and anything less almost always seems like an underpowered toy for someone half my size.

But, at long last, I've found a bike that doesn't weigh three times as much as me, doesn't punch out 1100cc, and yet still excites me. Perhaps the flashy red paint job has something to do with it, but even if I only watch the road ahead the GPz550 is a blast. This little motor actually has a healthy midrange to go with its top end. I even fit the bike without feeling cramped. As the ad says—it has everything you want in a bike, and less.

—David Dewhurst

• The GPz550 is a time machine. Stepping into its low seat transports me back to years gone by when every street was a racetrack and every turn was a chance to outbrake the world. The little Kawasaki sends me hunting for apexes. And, if I can't find a turn, my youthful exuberance creates apexes on the straights. Everything ahead becomes a series of S-bends and I try to take every one at full speed.

But in spite of all the GPz's speed, the ride into work takes twice as long these days. I'll set out with every intention of taking the freeway, but the GPz transports me back to racer road. Only after countless miles of scrubbed rubber and polished footpegs can I head for the realities of working life. The GPz is that sort of a bike, a two-wheeled machine that transports me to work and into my fantasies. *—Paul Dean*

Kawasaki GPz550

SPECIFICATIONS:

IMPORTER: Kawasaki Motors Corporation
2009 East Edinger Avenue
Santa Ana, California 92711

CATEGORY: street

SUGGESTED RETAIL PRICE: $2599

ENGINE

Type ..... four-stroke transverse vertical four
Valve arrangement ..... double overhead camshafts
Bore and stroke ..... 58.0mm x 52.4mm
Displacement 553.8cc
Compression ratio 10.0:1
Carburetion ..... four 22mm TK slide/needle
Air filter ..... washable oiled foam element
Lubrication ..... wet sump
Starting system ..... electric only
Ignition ..... transistorized breakerless
Charging system ... 12-volt; alternator, voltage regulator, rectifier

DRIVETRAIN

Clutch ..... wet, multi-plate
Crankshaft-to-jackshaft ..... Hy-Vo type chain: 1.174:1 ratio
Jackshaft-to-transmission ..... straight-cut gears 2.500:1 ratio
Final drive ..... #530 chain (5/8-in. pitch, 3/8-in. width); 2.375:1 (16/38) ratio

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.571	17.920	4.2
II	1.778	12.393	6.0
III	1.381	9.626	7.7
IV	1.125	7.841	9.5
V	0.962	6.705	11.1
VI	0.852	5.939	12.6

SUSPENSION/WHEEL TRAVEL

Front ..... air-spring, 36mm stanchion tube diameter/6.5 in. (165mm)
Rear ..... 5-way adjustable spring preload, 4-way adjustable rebound damping/5.3 in. (133mm)

BRAKES

Front ..... dual single-action hydraulic calipers, 10.2-in. (260mm) discs
Rear ..... single-action hydraulic caliper, 10.2-in. (260mm) disc

TIRES

Front ..... 3.25H19 Dunlop F8 Mark II
Rear ..... 3.75H18 Dunlop K130

DIMENSIONS AND CAPACITIES

Weight ..... 449 lbs. (204kg)
Weight distribution ..... 46.8% front, 53.2% rear
Gross vehicle weight rating (GVWR) ..... 814 lbs. (369kg)
Wheelbase ..... 55.3 to 56.3 in. (1405 to 1430mm)
Seat height ..... 32.0 in. (813mm)
Handlebar width ..... 27.3 in. (693mm)
Footpeg height ..... 12.8 in. (325mm)
Ground clearance ..... 5.8 in. (147mm)
Steering head angle ..... 26.0 degrees from vertical
Front wheel trail ..... 3.9 in. (98mm)
Oil capacity ..... 3.2 qt. (3.0/)
Fuel tank ..... steel, 3.8 gal. (14.5/), including 0.5 gal. (2.0/) reserve
Instrumentation ..... speedometer, odometer, tripmeter resettable to zero, tachometer, fuel gauge

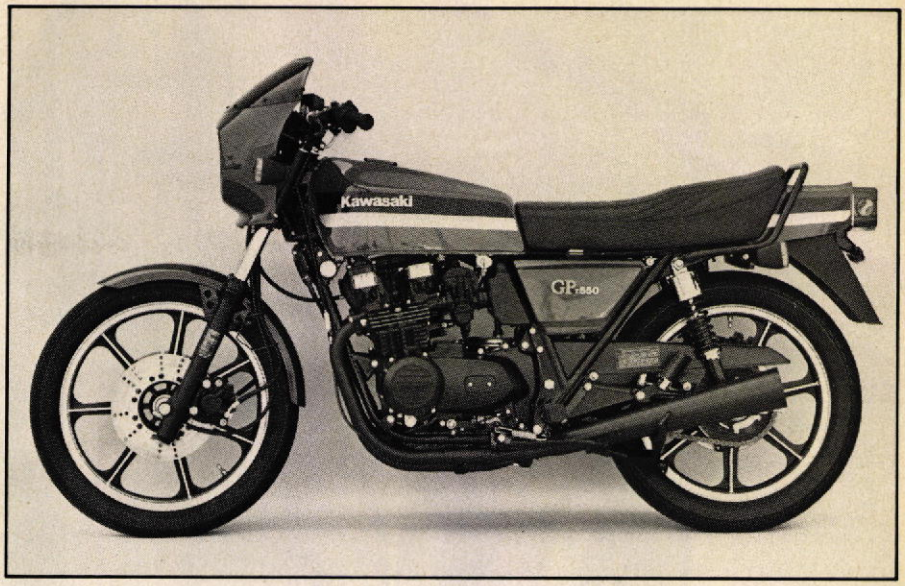
PERFORMANCE

Fuel consumption ..... 52 to 63 mpg (22 to 27 km/l)
Range, maximum ..... 198 to 239 miles (319 to 385km)
Range, reserve only ..... 26 to 32 miles (42 to 51km)
Speedometer error, 30 mph indicated ..... 30 mph actual
Speedometer error, 55 mph indicated ..... 55 mph actual
Best ¼-mile acceleration . 12.970 sec., 101.69 mph (164 kph)
Top speed (calculated) ..... 119 mph (192 kph)
Stopping distance from 30 mph ..... 33 ft. (10m)
Stopping distance from 60 mph ..... 149 ft. (45m)

WARRANTY: 6 months

AVAILABLE COLORS: Firecracker Red

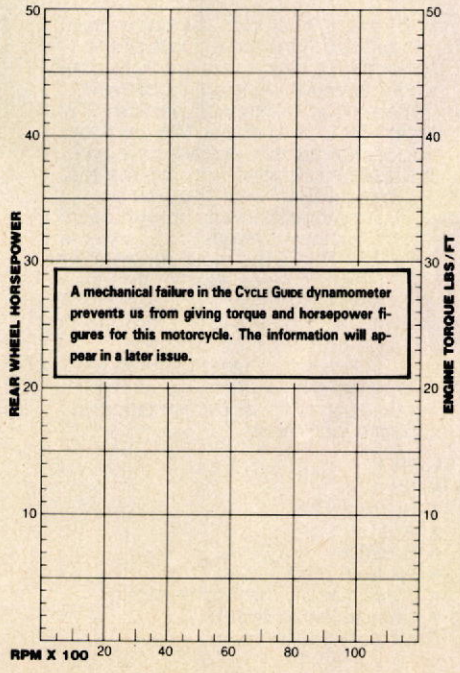
All weights and measurements are taken with machine unladen and fuel tank empty.

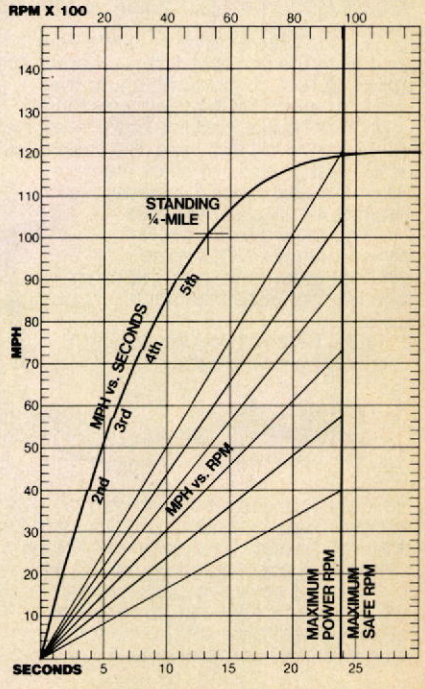


COMPARATIVE TEST DATA:

Make	Quarter-Mile, sec/mph	Top Speed, mph	Weight, lbs	Stopping Distance From 60 mph, ft.
Kawasaki GPz550	12.97/101.7	119	449	149
Kawasaki KZ550	13.45/97.1	103	426	150
Honda CB650	13.29/99.9	113	447	131
Suzuki GS450ST	14.09/92.5	100	397	127
Yamaha RD350LC	13.23/101.0	113	328	126
Yamaha RH550 Seca	12.99/101.7	121	418	119

PERFORMANCE:



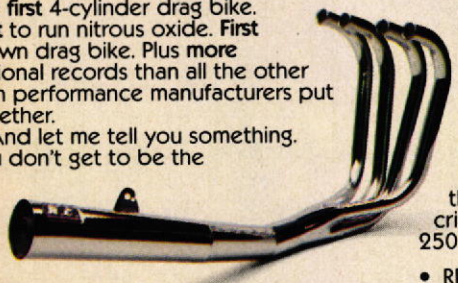


Welcome To The Indoor Quarter Mile

You don't have to be in racing very long to figure out that first is what it's all about. In fact, if you don't figure that out, you won't be in racing very long.

I'm Russ Collins, and I've been in racing 25 years. During that time, I've seen a lot of R.C. firsts – and not all of them on the track. The **first** 4-into-1 exhaust system. The **first** 4-cylinder drag bike. **First** to run nitrous oxide. **First** blown drag bike. Plus **more** national records than all the other high performance manufacturers put together.

And let me tell you something. You don't get to be the



No. 1 performance exhaust system manufacturer by being lucky. You get there by having top equipment. We've always had top equipment at R.C. We know, because we've been seeing imitations of it for years. In fact, every other 4-into-1 pipe on the market today is an imitation of the original R.C. system.

All of them. What ever they may claim.

But if you want to sort out all the performance claims real quick, ask one simple question. Ask 'em to prove it.

That's what our new Superflow SF800 engine dyno is all about. We call it our indoor quarter mile because we can duplicate track conditions on the test bench. Then we'll give you a computer printout with each exhaust system.

This is the most sophisticated performance analysis system available today. And you're looking at the only one in the motorcycle high performance industry.

In less time than it takes to read this, Superflow measures all the critical elements of performance. In 250 rpm increments.

- RPM
- Torque
- Horsepower
- Airflow
- Fuel flow
- Air/fuel ratio
- Brake specific fuel consumption
- Cylinder head temp.
- Exhaust gas temp.

Compared to my computerized dyno, conventional dynos are strictly Stone Age. Not much better than a water pump hooked up to a meat scale.

It boils down to this: If you buy a high performance system developed on a conventional dyno, you're buying a big maybe. But with R.C., you know exactly what you're getting. Not some cheap imitation. Not some chromed noise-maker. The best. And we can prove it.

All R.C. 4-into-1 high performance exhaust systems; chrome-$219.00, Kal-Gard black-$209.00, plus freight. Prices subject to change. Street legal in all 50 states. All new 1981 R.C. catalog, $3.00. Order toll free.

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RC ENGINEERING

13300 Estrella · Gardena, Ca 90248

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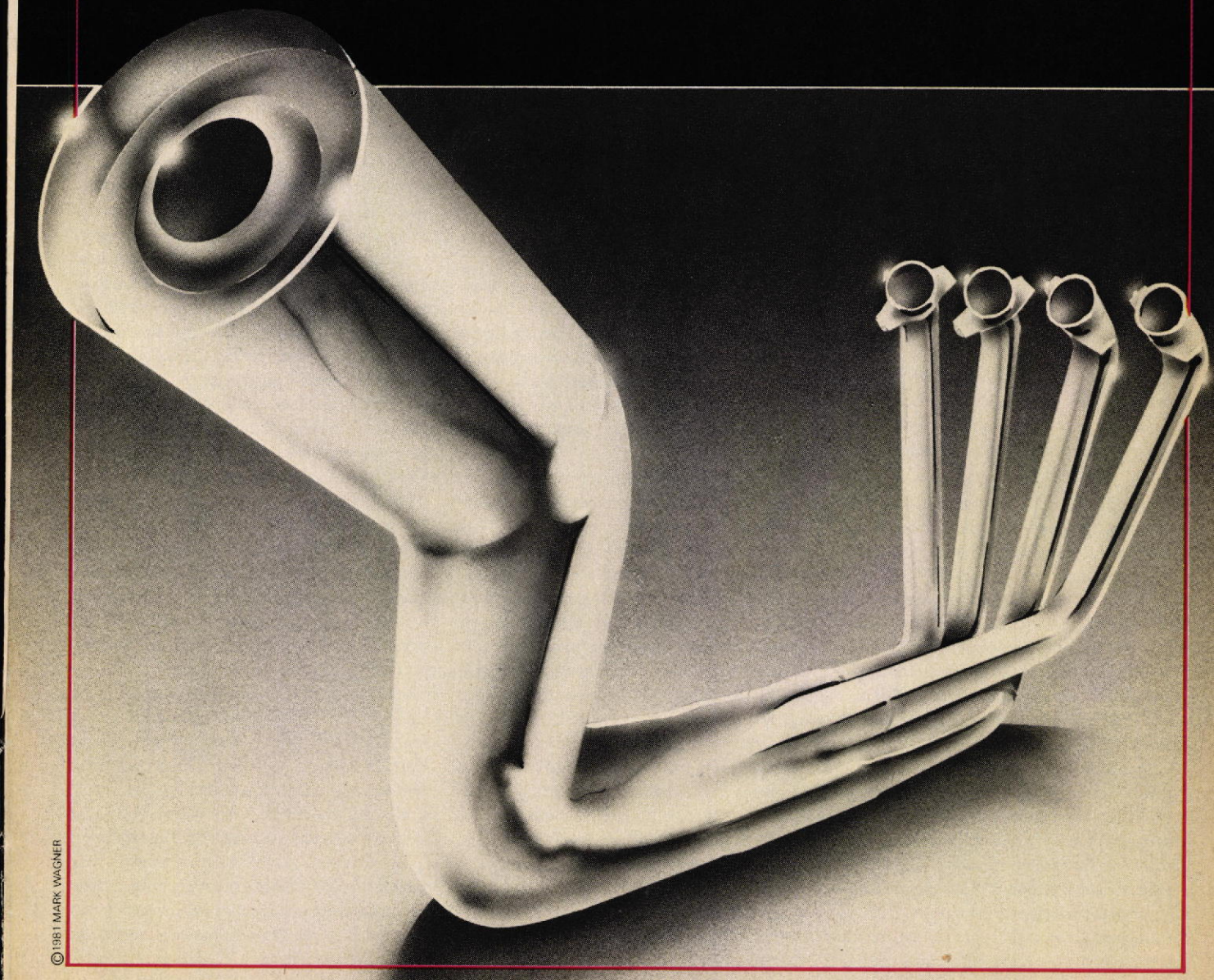
Cycle Guide's

SPECIAL EDITION

EXHAUST SYSTEMS

PIPES, MUFFLERS & SYSTEMS FOR STREET • DIRT • RACING

What to look for, what to avoid, what's legal, what they cost and where to get them.



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Exhaust systems offer the potential of more performance increase for your aftermarket dollar than practically anything else available. They are also among the most popular accessories people buy for their bikes, despite being relatively expensive. Lots of people want them, lots of people buy them and lots of manufacturers make them. So, to prepare you to pick the one exhaust system that's right for your needs from the hundreds that might not be, CYCLE GUIDE presents this Buyer's Guide on aftermarket exhaust systems. However, before flipping through the pages of photos, names and numbers, let alone cutting a check for a shiny new pipe, there are more than just a few things you should know.

To begin with, why do you want an aftermarket exhaust? Probably, you will have one of the following four reasons:

Reason One: You need a replacement. Either your stock system has worn out or rusted through, or you—sorry—crashed and turned your exhaust into industrial sculpture. Suppose you have a typical four-cylinder motorcycle. An OEM exhaust replacement, with all pipes and mufflers, can cost $400 or more. For not much more than half that, say a little over $200, you can have a complete 4-into-1 or 4-into-2 system from the aftermarket.

Reason Two: You want more performance. It is generally accepted that the better aftermarket systems have undergone extensive testing and will deliver noticeable increases in engine performance. Their free-flowing characteristics allow easier exit of exhaust gases, providing both more punch and greater fuel economy.

Reason Three: You would like what could be called the display of a performance image, which might or might not be related to Reason Two. Aftermarket exhausts can change a stock bike's personality. They are identifiable, both by appearance and sound, as performance systems for the rider who cares about a hard-running image.

Reason Four: You are a touring rider, and in this day of stock upswept exhausts you need pipes that will give more clearance for saddlebags without burning the contents. You should be able to find something in the aftermarket.

Typically, with an aftermarket exhaust you can gain some combination of the following: the satisfaction of beating the price for a stock system or OEM part; increased performance and mileage; less weight and more ground clearance; an image of performance; and a more convenient accommodation for saddlebags.

On the other hand, all might not be rosy if you're not careful in your selection. You might not like the extra noise, you could lose the use of a centerstand or find it a real strain to change the oil and filter. That's why you should shop first.

What should you look for? Deciding exactly why you want an aftermarket exhaust narrows the problem greatly. Consider all the points important to you. As an example, take perhaps the most typical case of all—a buyer shopping for a 4-into-1 pipe for street use. He wants more performance and, naturally, all the mileage possible. Maybe he is a hard weekend rider, but not a racer. Price is important, of course, but so are many other things. Is the exhaust system well-built, and does it come from a manufacturer with a reputation for quality? Will the chrome last? Will the system bolt to the bike without any other modifications? Will it detract from the motorcycle's durability? Will the exhaust hamper the side- and centerstands? Can the oil and filter be changed without removing the exhaust? Will the passenger footpegs have to be removed? Will the new exhaust fry a hole through any saddlebags? Will the noise level cut short long rides?

There are checks you can make before you buy to answer some of those questions. Examine the exhaust for the integrity of the welds. Check the chrome plating in the tricky places, like tiny crevices and valleys around the collector, for instance; if it's good there it's likely to be good elsewhere. Read the manufacturer's literature. Try to find some other riders who have had experience with the same product. Ask around. It's your money, after all. And in asking around, there seem to be three main areas of concern.

First, there was a time when an aftermarket exhaust required removing at least one of the stands, usually the centerstand. Now, most street pipes allow full use of the centerstand, but check anyway. Some don't. You might find that while the centerstand will pivot down it might not fold *up* as high as it did, leaving the stand hanging out in the breeze like an afterthought.

Second, street exhausts used to require carburetor rejetting because they were so free-flowing and pulled so much more air through the engine that there was not enough fuel to keep the mixture correct. Today, however, most street systems from major manufacturers don't require rejetting; they are designed to work with stock carburetion.

Third, many street exhausts covered up the oil drain plug and filter as the pipes wrapped under the bike for maximum cornering clearance. That, too, is changed. Practically all street systems are now designed with oil changes in mind.

You should also know there are pure racing systems that can negate the use of stands, can require significant rejetting and can interfere with oil drains and filters. A major manufacturer—like Kerker, for example, the largest—might offer both racing and non-racing systems.

Generally, chrome plating is used for street systems, with competition exhausts painted black. Chrome is more durable but can turn blue from engine heat because, unlike OEM pipes, most accessory exhausts don't have double-walled construction to protect the chrome from hot exhaust gases. Paint, too, can deteriorate, but it can also be renewed easily with a spray can.

Obviously, you might have other concerns and other priorities. There are various features that might be important to you. Many street systems are available with different baffles, to provide varying amounts of performance increase, but at the expense—or benefit, your choice—of more noise. Some exhausts can be tuned to alter the power characteristics of an engine. Any dirt system slated for duty in the woods or fields should be equipped with a spark arrestor. A competition exhaust, particularly on a two-stroke, can have a drastic effect on jetting requirements, so proceed carefully and beware the piston-burning demon.

Finally, The Law, the most misunderstood area of all. The Law is concerned mainly with emissions and noise levels.

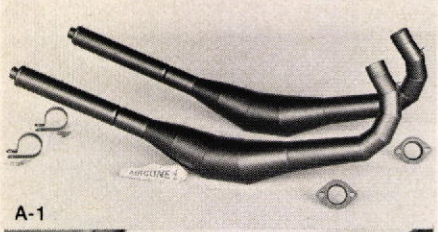
Emissions are handled at the federal level by the Environmental Protection Agency. The regulations cover 1978 and later models and prohibit making any changes that increase emissions above those when the bike was new. The statutes are a mass of gray areas, but it appears that, essentially, emissions control does not include the exhaust system. However, it *does* include carburetor jets. But, and here's a catch, The Law does not prohibit an individual owner from altering the bike, only those established commerical concerns specifically in the business—like your dealer. If he changes the jets to make your '78 or later street bike run faster or better with the new pipe, it's illegal. If you do, it's not. But for him to be prosecuted, the EPA must be notified by a complaint to one of the Agency's field offices.

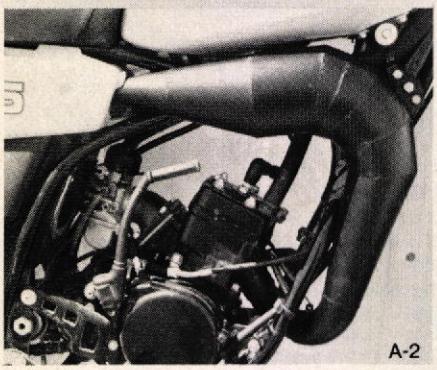
There are currently no noise restrictions at the federal level, although there certainly are several at the local levels—all of them subject to interpretation by the area constabulary. In a practical sense, noise violations are a matter of the local cop deciding that your bike's too loud. EPA—federal—noise regulations will take effect on January 1, 1983, superseding all local laws in the matter, and there's another catch—the enforcement arm of the noise section of the EPA is being phased out, a result of the last Presidential election. When we asked the man at the EPA how there could be a standard with no enforcement, he replied, "That's a good question." It's not unlike having a 55-mph speed limit with no police.

If you come to the conclusion that the individual motorcyclist has little to worry about from the federal government in terms of emissions and noise, you're right. However, you will have to satisfy the local police on noise, and about the only good advice is to use common sense.

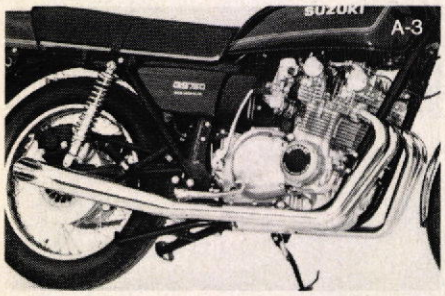
One more point about The Law. There is no such thing as "EPA Approval" for any aftermarket exhaust. The man at the EPA laughed when he heard of those claims, and you know how often bureaucrats think things are funny.

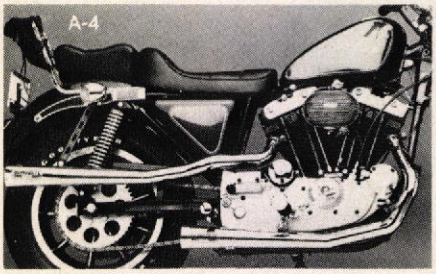
Which about covers it for the whole exhaust system question. An exhaust is still just about the quickest method to alter the personality of your motorcycle, and even at a premium price, it's one of the cheapest performance improvements you can buy. Now you can turn the page to find out what's available. You won't find it anywhere else.


A-1

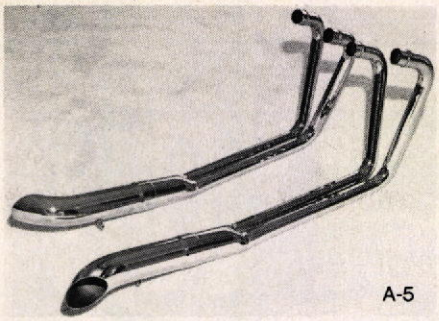

A-2

AIRCONE INC.
5901 Emerald Ave.
Las Vegas, Nevada 89122
(702) 456-4177
Information free
Street systems for Yamaha RD350/400 designed to provide a good powerband, adequate cornering clearance and repackable silencers. The price is $140. (A-1) Dirt systems to fit most popular off-road bikes, as well as most 3-wheelers and Honda's Odyssey. A choice of repackable silencers or a combination silencer/forestry-approved spark arrestor is offered on some models. Yamaha YZ125H pipe offers a claimed peformance increase over the stock system and sells for $94.95. (A-2) All Aircone pipes are constructed from hand-fitted cones.

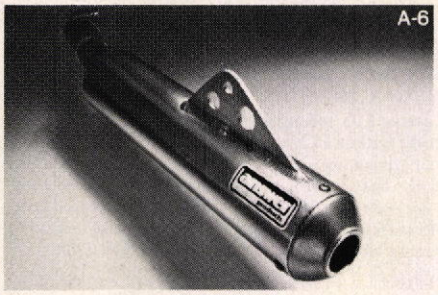

A-3

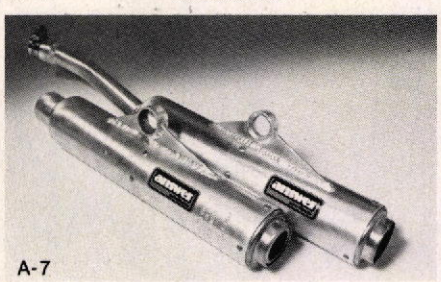

A-4

ALPHABET HEADERS
12572 Western Ave.
Garden Grove, California 92641
(714) 897-3561
Catalog $3
A full line of street systems to fit most popular four-strokes. Many designs feature equal-length headers, a heavy, bright chrome finish, 18-gauge steel and easy access to oil filters. Replacement mufflers are also available for some machines. Alphabet's 4-into-2 system for Suzuki's GS750 offers a custom look with turn-out mufflers and a claimed 50-percent weight reduction over stock for $183.95. (A-3) "Pro-formance" systems for Harley Sportster include staggered, dual-chrome shotgun "Twice Pipes" with megaphone mufflers for '79-'80 XLH, XLCH and XLS models for $127.95. (A-4)

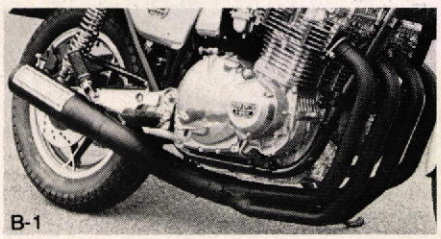

A-5

AMERICAN MOTORCYCLE ENGINEERING INC.
612 30th St.
Paso Robles, California 93446
(805) 329-1040
Catalog $1
Custom chopper-style street systems to fit most Honda 750s and Kawasaki 900s and 1000s in heavy decorative chrome plate designed to fit stock and custom frames with no alterations required. All systems are priced at $149. (A-5)

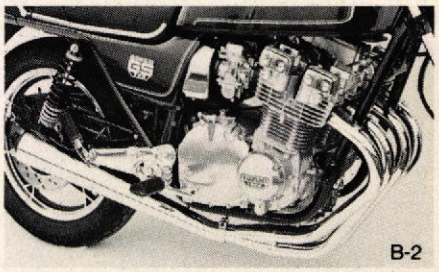

A-6

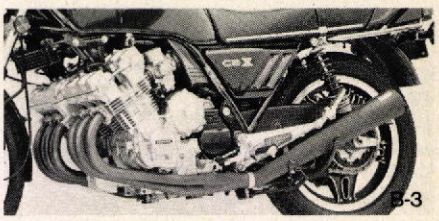

A-7

ANSWER PRODUCTS
7846 Alabama Ave.
Canoga Park, California 91304
(213) 340-1083
Catalog $3
A complete line of lightweight aluminum silencers and forestry-approved spark arrestors to fit most popular two-stroke dirt bikes. Units feature quality construction from 6061-T6 aluminum for a claimed 50- to 60-percent weight reduction over stock, and bolt- and clamp-on installations with no modifications. Silencers retail from $36.95 to $49.95, and spark arrestors range from $49.95 to $69.95. Repacking kits are $5.95. (A-6&7)

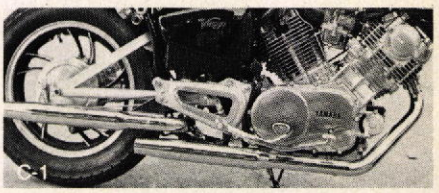

B-1

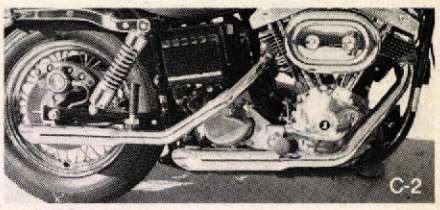
BASSANI MANUFACTURING
3726 E. Miraloma Ave.
Anaheim, California 92806
(714) 630-1821
Catalog $1
Bassani offers a selection of street and dirt systems to fit most popular two- and four-stroke machines, plus Honda ATC and Odyssey pipes. Many street systems are offered in either chrome or black finish. The Suzuki GS1100 Superbike Pipe pictured is a competition-oriented system claiming maximum cornering clearance, a 25-pound weight saving over stock and a performance boost. It sells for $225 in black and $265 in chrome. Stock centerstand cannot be retained, but a Superbike stand is optional at $30. In addition, there are baffle options for quieter operation. Spark arrestor/silencer units and full dirt systems range from $42 to $90. (B-1)


B-2

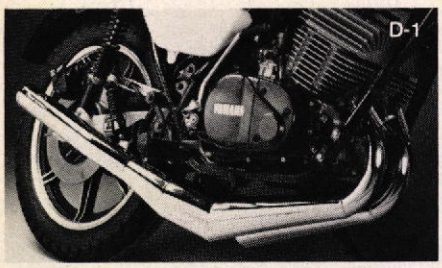

B-3

BUB ENTERPRISES
785 East Brokaw Road
San Jose, California 95112
(408) 298-2826
Catalog free
A full line of street systems in black or chrome to fit most popular two- and four-stroke machines as well as replacement headers and mufflers for some Ducati, Moto Guzzi and Norton models. The 4-into-1 GS750 system pictured offers good ground clearance and a claimed performance increase at the cost of limited oil-filter clearance on some models. Centerstands may be retained. The GS system is $200 in chrome or $190 in black. (B-2) Bub's Honda CBX 6-into-2 system gives good ground clearance, with a claimed performance boost to boot, at $259 in black or $285 in chrome. (B-3)


C-1


C-2

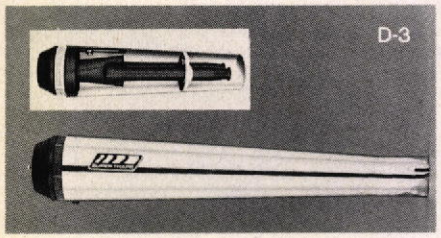
CYCLE SHACK INC.
1104 San Mateo Ave.
South San Francisco, California 94080
(415) 583-7014
Catalog $3
Custom-styled systems for Harley-Davidson, and 4-into-1, 4-into-2, 2-into-2 and 2-into-1 systems for popular Honda, Kawasaki and Suzuki models. A few systems for Triumph, Norton and Yamaha's Virago. The Virago pipes are designed to retain centerstand and feature show-chrome finish, tapered mufflers, all-steel muffler core, quiet tone and a claimed weight reduction for $110. (C-1) Harley line includes this SS design for the FX, FXE, FXS, FXB and FXE-F which offers good ground clearance, one-piece design, and chrome finish, and it fits '71 and later models with or without electric starters. Comes complete with mounting brackets at $99. (C-2)


D-1

D-2

DG PERFORMANCE SPECIALTIES INC.
1170 Van Horne Ave.
Anaheim, California 92806
(714) 630-5471
Catalog $1

Street and dirt systems for most popular two- and four-strokes and replacement mufflers for a number of street bikes, plus Yamaha Tri-Moto and Honda Odyssey pipes. High-luster show-chrome expansion chambers for all Yamaha RD350/400s are claimed to give a 20-percent power increase for $199. New liquid-cooled RD350LC chambers are available in black only for $159.50. (D-1) DG's Honda CR250R pipe features a new all-stamped design with a higher headpipe to avoid flattening, 20-gauge steel construction and a claimed broader powerband for $94.50. (D-2)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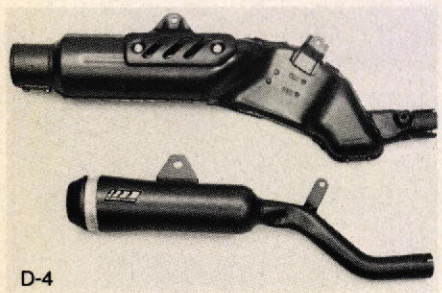
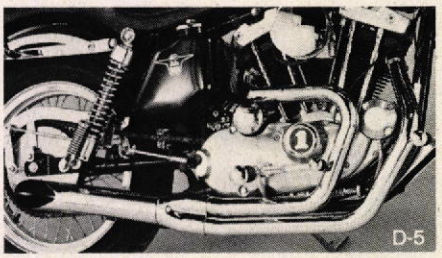

D-4

DISCOJET CORPORATION
920 3rd St.
Davis, California 95616
(916) 756-5069
Information free

Replacement muffler conversion kits for street and dirt two- and four-strokes. The chrome street replacement muffler features an all-metal core (no packing) and will fit all early Honda F-models with stock 4-into-1 systems, plus Yamaha SR500, BMW, universal sizes and many other models. The Super Trapp is available to fit Kerker, Jardine, S&S, Alphabet, R.C., J&R and similar systems. It is designed to provide street-legal noise levels without inhibiting performance potential. (D-3) The new four-inch-disc model for Honda XR/XL500 and Yamaha TT/XT500 claims a better than 50-percent weight saving over the stock muffler with a three- to five-horsepower increase, as well as a low noise level, easy fit, wide tire clearance, no maintenance and a forestry-approved spark arrestor for $79.95. (D-4)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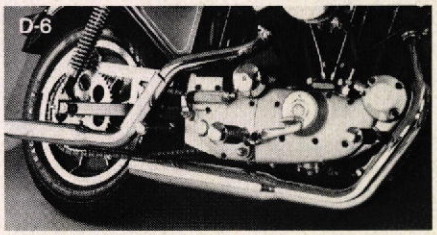
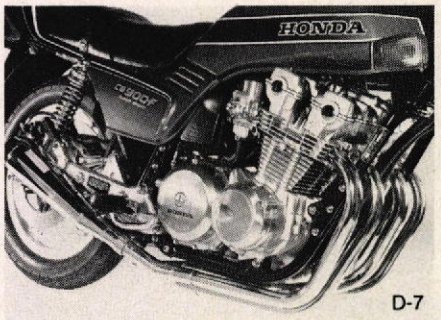

D-6

DRAG SPECIALTIES
5401 Smetana Dr.
Minnetonka, Minnesota 55343
(612) 935-1000
Catalog $10 (refundable on orders over $100)

Street systems for virtually all Japanese singles, twins and four-cylinder bikes, plus straight drag pipes and a full line for Harley-Davidson. The H-D Sportster Firestacks pictured feature slash-cut turn-out equal-length pipes with a 3-inch-diameter collector, low-restriction mufflers, chrome plating and a claimed boost in performance. Prices on request. (D-5&6)



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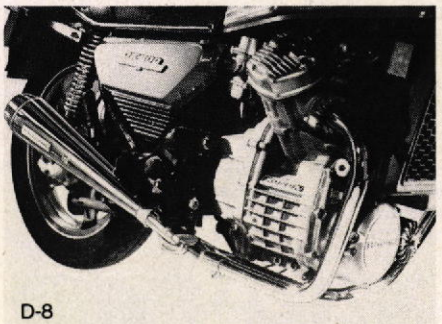
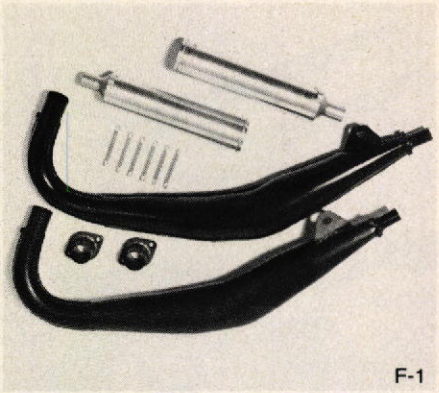

D-8

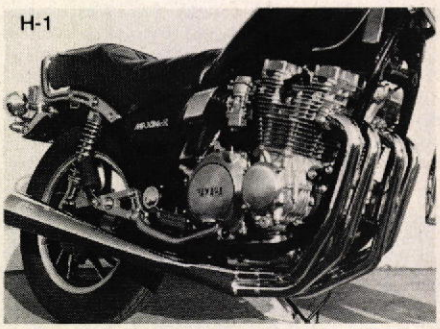
PAUL DUNSTALL ORGANISATION INC.
27402 Camino Capistrano, Suite 206
Laguna Niguel, California 92677
(714) 831-0351
Literature available

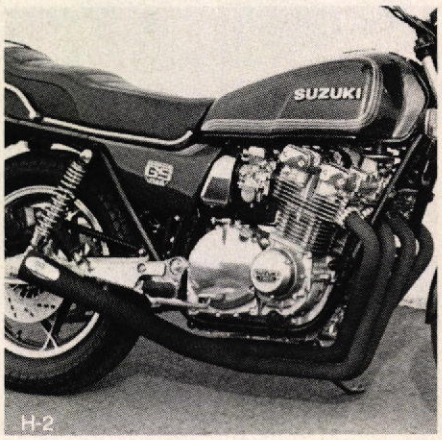
Complete street four-stroke systems and slip-on replacement mufflers to fit most popular machines, plus 2-into-1-into-2 systems for Norton and Triumph. Dunstall units are claimed to reduce back pressure and all systems and mufflers feature a brilliant chrome finish, retention of center- and sidestands, bolt-on installation and a twelve-month warranty. Pictured systems for Honda's CB900F and CX500 sell for $169.50 and $129.50, respectively. (D-7&8)


F-1

FACTORY PIPE PRODUCTS
3001 S. State St., No. 30
Ukiah, California 95482
(707) 462-9291
Brochure free

Specializing in street systems for Yamaha R5-RD350/400 and Daytona Specials. Pipes for Yamaha Tri-Motos and Kawasaki Jet Skis also available. RD pipes feature rebuildable aluminum mufflers with perforated cores, tapered headpipes and manifolds, rubber mounting and increased cornering clearance. Smooth curves and tapers are claimed to produce 30 percent more power over stock between 5500 and 11,000 rpm. $125 per set complete with jetting instructions. Resonators for extra silencing are $15. (F-1)


H-1



H-2

HOOKER HEADERS
Box 4090
Ontario, California 91761
(714) 983-5871
Catalog free

Street and dirt systems and some replacement mufflers for most popular two- and four-strokes including Norton and Triumph, and some systems for Honda ATC, Odyssey and Yamaha Tri-Moto. Some systems are engineered for maximum horsepower and are not claimed to conform to any or all applicable street noise regulations. Such is the case for this Race Exhaust System for Yamaha's XJ650 Maxim, available in chrome for $223 or black for $160.75. (H-1) The Suzuki GS1100 system is also designed for racing only and lists for $154.50 in black or $219.75 in chrome. (H-2)

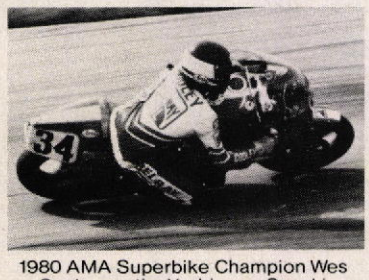
Yoshimura Exhaust Systems

THE FASTEST WAY OUT

Yoshimura exhaust systems are designed to help empty your cylinders **fast!** Their smooth bends, unified flow design and low-pressure, one-piece, all-metal baffles elevate exhaust pipes from dumping tubes to high-performance equipment.

FOUR-INTO-ONE: Yoshimura four-into-one exhaust systems are the direct descendants of the pipes used in Yoshimura's world-wide road racing successes. Suzuka. Bol D'Or. European Formula One TT Champs. Four consecutive Daytona wins. 1979 & 1980 AMA Superbike Champions. And countless others. What was learned on the dyno and at these races has gone into our Yoshimura street bike systems.

Yoshimura four-into-one pipes increase torque and horsepower throughout the RPM range, reduce weight, increase cornering clearance and the all-metal baffle has no fiberglass packing to blow out or replace.



1980 AMA Superbike Champion Wes Cooley on the Yoshimura Suzuki

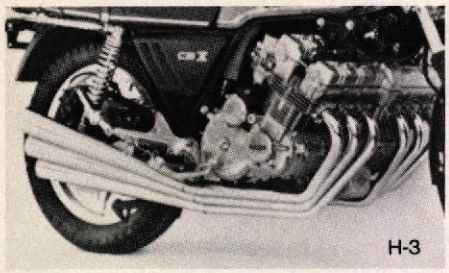
FOUR-INTO-TWO: For a strong performance increase and a beefier sound without increased noise, you can't beat the Yoshimura four-into-two systems. They give your machine a more balanced look, reduce weight, retain center stand use and oil filter access and are compatible with most touring accessories. And their deep chrome finish will give your bike a new radiance.

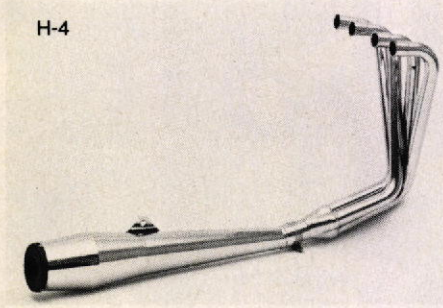
Yoshimura exhaust systems... when a fast exit is important. From $175.

Send $3 for our 1981 catalog, $7.50 for a T-shirt, $49.95 for a jacket (+ $1.50 shipping, CA res. add 6% tax, sizes S, M, L, XL, T-shirts red or white) to: Yoshimura Research and Development of America, 4555 Carter Ct., Chino, CA 91710. VISA and MasterCard. (714) 628-4722. Telex 182956.

YOSHIMURA

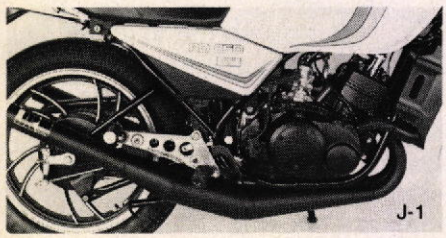
The Precision. The Performance. *The Power.*

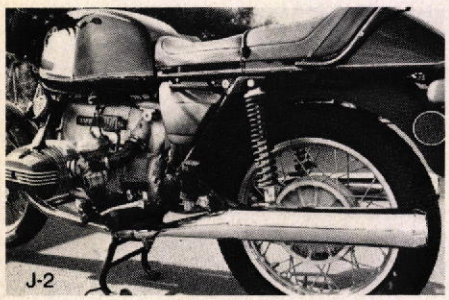

H-3


H-4

HOT BIKE ENGINEERING
4432-E Enterprise
Fremont, California 94538
(415) 657-3864 & 656-8275
Brochure free

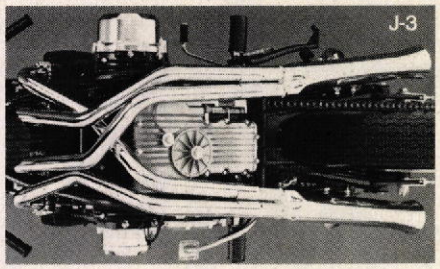
Street four-stroke systems for some 650cc and larger Hondas, Kawasakis and Yamahas, plus racing two-stroke expansion chambers for various Kawasaki and Yamaha 350 through 750cc twins and triples. The 6-into-6 Honda CBX system employs six separate head pipes and muffler sections, bolts together without the use of any clamps, improves ground clearance and lean angle capabilities and claims a significant power increase over the stock system. $299.95 chrome or $269.95 black. (H-3) Optional high-performance louver baffles are $59.95 a set, and mellow tone touring-type, no-maintenance baffles are $19.95 each. The unique-looking Tricone header system for Kawasaki Z1s is $179.95 in black and $209.95 in chrome. (H-4)

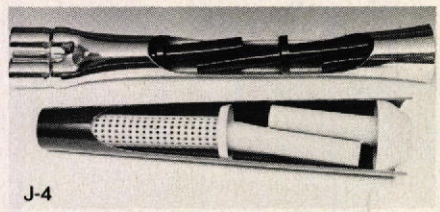

J-1


J-2

J&R EXHAUST SYSTEMS
3565 Cadillac Ave.
Costa Mesa, California 92626
(714) 540-5009
Catalog $2

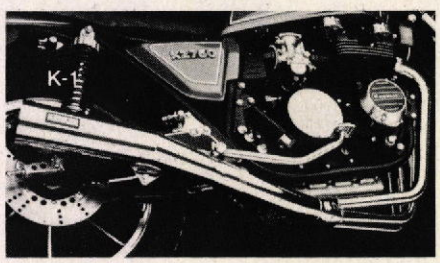
Street and dirt systems for Kawasaki, Suzuki and Yamaha two-strokes, pipes for Honda XR and XL four-strokes, as well as ATC and Odyssey, and replacement mufflers for BMW. J&R's Yamaha RD250/350 LC pipes are designed to offer improved cornering clearance and an increased power output with a minimal noise-level increase. They sell for $228.65 in black or $249.90 in chrome. (J-1) Chromed BMW replacement mufflers range in price from $136.30 to $149.70. (J-2)

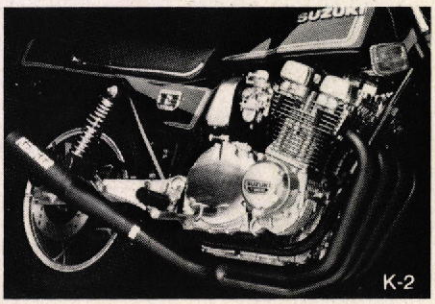

J-3


J-4

JARDINE HEADERS
7142 Belgrave Ave.
Garden Grove, California 92641
(714) 893-7594
Catalog $2.50

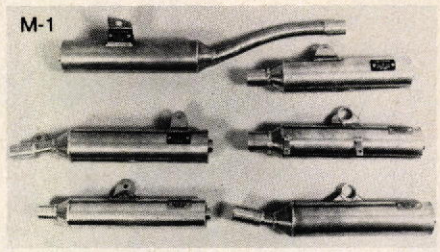
Street four-stroke systems to fit most popular road bikes finished in high-nickel chrome, black or special Black Chrome. Jardine also offers Yamaha XT/TT500 systems, pipes for Honda ATCs and replacement mufflers. Each system is designed for a claimed performance increase, styling improvement, perfect fit and customer satisfaction. Among many megaphone-end system styles is the 4-into-2 Kawasaki KZ1000 Classic exhaust which sells for $252.95 (J-3). Megaphone cutaway shows high-velocity reverse-flow construction technique and design for their 4-into-2 (top) and 4-into-1 (bottom). (J-4)


K-1


K-2

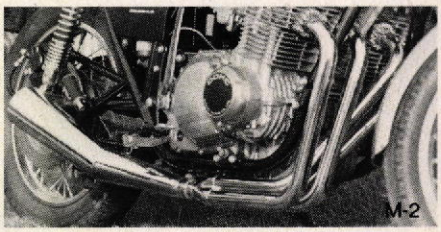
KERKER
7900 Deering Ave.
Canoga Park, California 91303
(213) 999-3060
Catalog $2

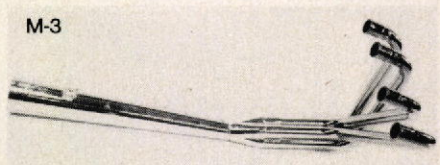
A complete line of street four-stroke systems to fit most Japanese machinery, and a special KR series of Superbike pipes developed and intended specifically for racetrack competition. The '81 Kawasaki 750 system claims a 20-pound weight reduction over stock and a power increase throughout the powerband. In addition, there is a removable and repackable baffle, retention of the centerstand, oil-filter and drain-plug clearance, and the system is available in show-quality chrome for $219 or Kal-Gard black for $209. (K-1) The GS1100 KR system shown was developed as a competition pipe with good cornering clearance and a claimed 10-horsepower gain without rejetting. Shipped with both a street and competition baffle for $265. (K-2)


M-1

MALCOLM SMITH PRODUCTS
7563 Indiana
Riverside, California 92504
(714) 687-1300
Catalog $3

Lightweight aluminum alloy clamp-on silencers to fit most popular motocross bikes and designed to reduce component weight by up to 50 percent. Features include all-steel core with repackable continuous-filament glass packing, reinforced bracketry and bolt-on installation. Prices are $44.95 for all bikes, except Maicos which are $54.50. (M-1)

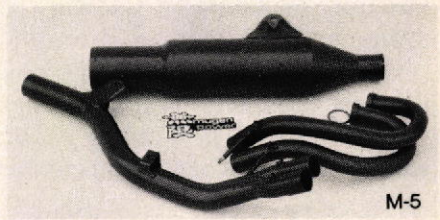

M-2


M-3

MTC ENGINEERING
428 Shearer Blvd.
Cocoa, Florida 32922
(305) 636-9480
Catalog $3

Street four-stroke systems for Kawasaki KZ900/1000/1100 and Suzuki GS750/1000/1100. Features include rotationally-tuned equal-length designs claimed to produce maximum power while meeting or exceeding federal noise-level requirements. Both the Suzuki GS750 pipe shown mounted and the Kawasaki system sell for $185.90 in chrome or $152.90 in black finish. (M-2&3)

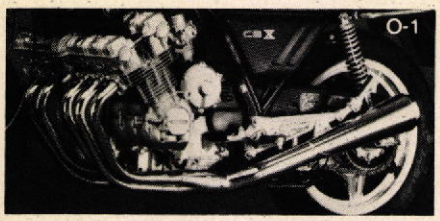
M-4

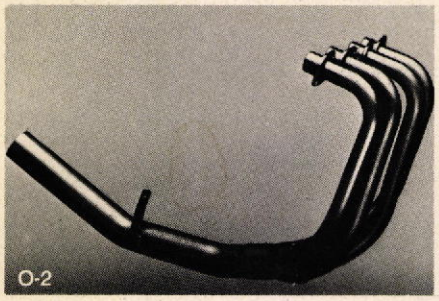

M-5

MUGEN U.S.A. CO., LTD
6944 Santa Fe Ave. East
Hesperia, California 92345
(714) 244-6405
Brochure $1

Competition dirt systems designed to produce high perform-

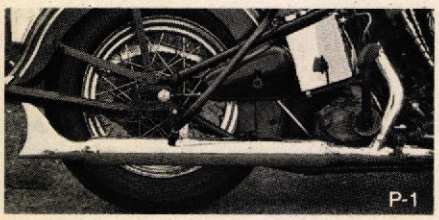
ance levels from Honda CR and XR/XLs. Pipes are designed for use in conjunction with Mugen engine kits. Other applications should be discussed with Mugen. Their ME125 WII Special Works Chamber for '81 CR125s is designed to provide optimum performance on high-speed dry courses. The water-cooler option is priced at $150. (M-4) The Baja Commander XR500 system features only enlarged, identical-length head pipes to fit '81 models for $99. 1979 and '80 models use a special 2-into-1 with S-bend and quiet spark-arrestor/muffler for $180. (M-5)

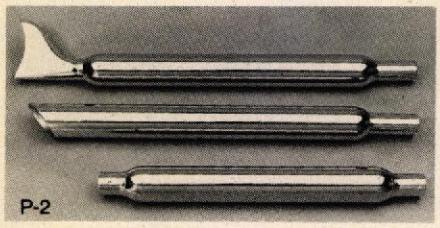




ONTARIO MOTO TECH CORP.
6850 Vineland Ave. Unit 16
North Hollywood, California 91605
(213) 766-7101
Brochure free

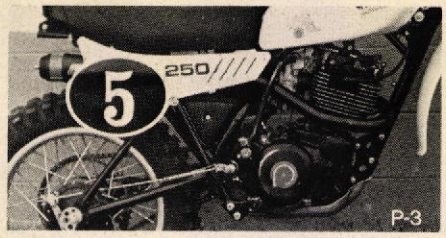
Specializing in street and racing-only four-stroke high-performance systems mainly for Honda, but with a few Kawasaki pipes. Claimed features include maximum cornering clearance, reverse-cone baffle assemblies with ceramic fiber for long life, racing baffles, track and dyno testing procedures for production systems and a claim of up to 12 more horsepower. Prices for CBX street and CB400F racing system shown, as well as other system prices, are available on request. (O-1&2)





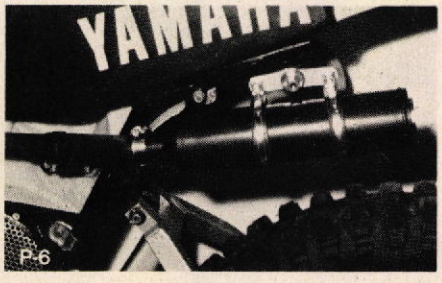
PIPE SHOPPE
732 W. 14th St.
Long Beach, California 90813
(213) 432-1646
Catalog $3 (refundable)

Street systems for Harley-Davidson only, with a complete selection of early through late models constructed of heavy-gauge American-made steel and finished with brilliant chrome. Clamp-on 3-inch fishtail mufflers (mounted) are available in 32-inch or 36-inch lengths and are designed to mount easily on stock head pipes with rigid or suspended frames. (P-1) The all-steel core units are $135 a pair. Other photo shows 27-inch rockets for $93 a pair and 34½-inch angle cuts for $105 a set. (P-2)



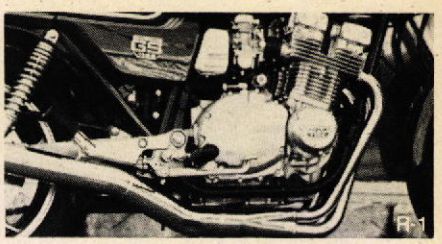
POWROLL PERFORMANCE PRODUCTS
Box 1206
Bend, Oregon 97701
(503) 382-6395
Catalog $3, Brochure on specific model free

Specializing in dirt four-stroke systems for most popular off-road machines including Honda ATCs. All designs feature smooth bends, a claimed power increase, reduced overall exhaust system weight and a bolt-on fit. The Yamaha TT250 up-pipe uses a 1½-inch pipe and claims a 14-percent performance boost in midrange and top end. A forestry-approved spark arrestor is also available for most machines. Price is $39 for the pipe and $40 for a Super Trapp silencer/spark arrestor (P-3). The Honda XR200R system claims a 12-percent midrange power gain and a decrease in weight; $39 for the pipe and $40 for the spark arrestor/silencer (P-4).



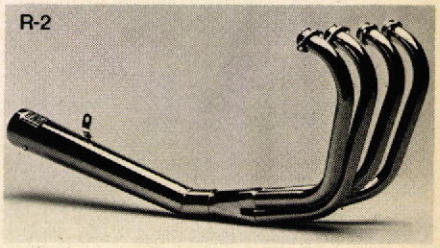
PRO-TEC INC.
282 Gemini Way
Brea, California 92621
(714) 738-0631
Catalog $2.50

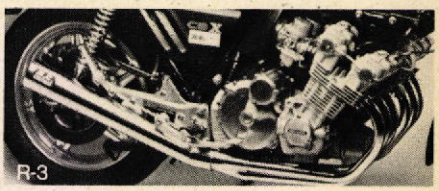
A full line of four-stroke dirt systems to fit all popular off-road bikes, plus some streetable units for dual-purpose machines, performance pipes for Honda ATCs and a selection of clamp- and weld-on spark arrestor/silencers, megaphones and aluminum clamp-on mufflers and muffler/spark arrestors for two-strokes. The Honda XR500R system is a bolt-on unit with new head pipe, S-bend and silencer/spark arrestor. It provides a reduction in weight and a claimed performance increase for $89.94 (P-5). The rebuildable two-stroke silencer comes with all necessary mounting hardware and claims a near 50 percent weight savings for $27.95 (P-6).



RB RACING
9063 W. Washington Blvd.
Culver City, California 90230
(213) 559-0256
Catalog $3

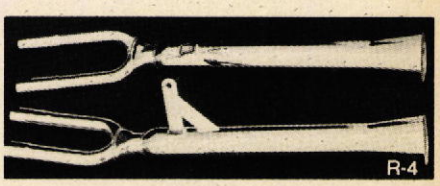
A line of street and competition four-stroke exhaust systems to fit many high-performance Japanese hyperbikes from 750cc on up, featuring maximum cornering clearance, 16-gauge steel tubing, rebuildable baffles, leak-free precision collars and a high-quality chrome, baked-on powder-coat or black chrome finish. Most units are $179.50 in black, $199.50 in chrome and $229.50 in black chrome (R-1). Honda CBX systems are $245, $275 and $350.





R.C. ENGINEERING
13300 Estrella Ave.
Gardena, California 90248
(213) 327-6858 or (800) 421-1878
Catalog $3

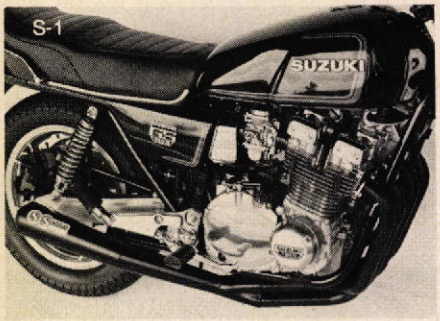
A full line of street four-stroke systems to fit virtually every 550 to 1100cc Honda, Kawasaki, Suzuki and Yamaha. The Suzuki GS1100 Performance system pictured claims an increase in power and a decrease in weight along with improved cornering clearance, easy access to oil filter and drain plug, retention of both side- and centerstands, a low-restriction repackable glass-packed muffler and a brilliant chrome finish. Racing-only baffles are available separately. The Suzuki GS1100 pipe runs $209 in black or $219 in chrome (R-2). Replacement clamp-on megaphones for many popular machines are priced between $69.95 and $85.50. The Honda CBX system pictured is, like RC's other systems, legal in all 50 states and is available in Kal-Gard competition black for $299, or in bright chrome for $315. (R-3)

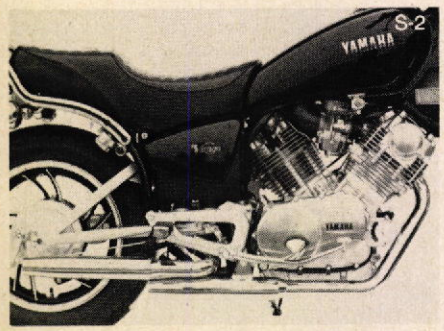


RAM-FLOW MUFFLERS
1111 S. Fremont Ave.
Alhambra, California 91803
(213) 284-7150
Catalog $1

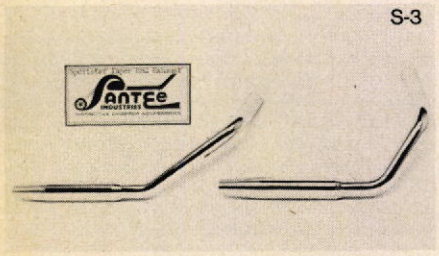
Street replacement mufflers for BMW, Harley-Davidson, Honda, Kawasaki and Moto Guzzi. The 4-into-2 Honda CB900 Custom mufflers are designed to allow room for saddlebags and touring accessories. Other features include a claimed increase in performance and economy, clamp-on installation to

stock headers, repackable muffler units and a bright chrome finish (R-4). Prices on request.

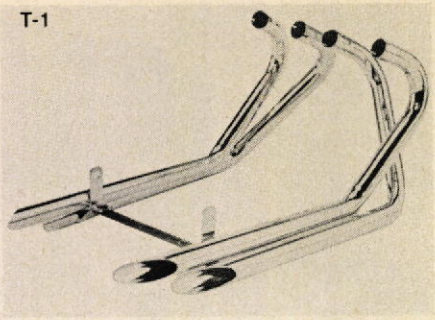


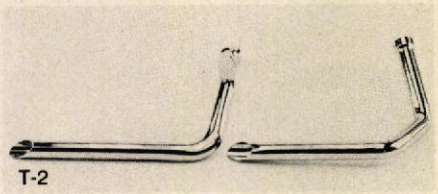


S&S HEADERS
3565 Cadillac Ave.
Costa Mesa, California 92626
(714) 546-8635
Catalog $2
Street two- and four-stroke pipes as well as dirt four-stroke systems and Honda Odyssey and Yamaha Tri-Moto pipes. Complete systems for most popular brands including Norton and Triumph. Suzuki GS1100 system pictured features improved ground clearance, oil filter access, retention of side- and centerstands and a claimed performance boost over stock. It sells for $149.45 (S-1). New addition is a replacement Yamaha Virago 2-into-2 system in bright chrome plate. Prices for Virago and clamp-on replacement mufflers in various styles are available on request (S-2).

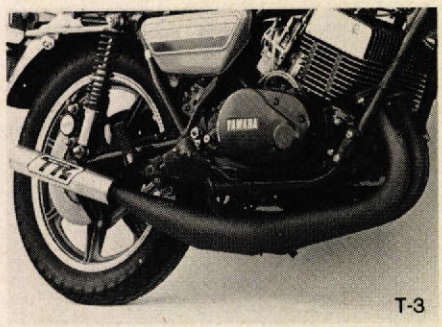


SANTEE INDUSTRIES
651 Arroyo Ave.
San Fernando, California 91340
(213) 365-3236
Catalog $3
Specializing in street systems for Harley-Davidson, offering a full line of custom-styled exhausts for virtually all models and years. The tapered-end Sportster system features an all-steel baffle, heliarc welds, good ground clearance, and it fits both rigid and swingarm models (S-3). Fishtail exhaust fits Knucklehead, Panheads and Shovelheads (S-4). In addition, there are a few systems available for Honda and Kawasaki four-cylinder machines. Prices on request.





TOM'S ACCESSORIES INC.
P.O. Box 18145
Seattle, Washington 98118
(206) 722-8457
Catalog $3
A line of four-stroke and custom street drag pipes, plus complete exhaust systems with mufflers to fit many BSA, Harley-Davidson, Honda, Kawasaki, Norton and Triumph machines. All systems and drag pipes are finished in bright chrome plate (T-1). Prices for the Honda/Kawasaki four-cylinder group and Harley Panhead drag pipes are available on request (T-2).



TOOMEY RACING
25901 Belleporte Ave.
Harbor City, California 90710
(213) 539-4324
Brochure available
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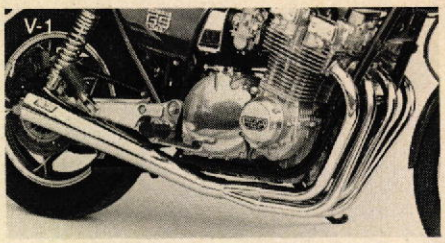

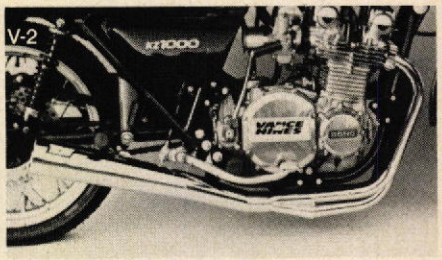

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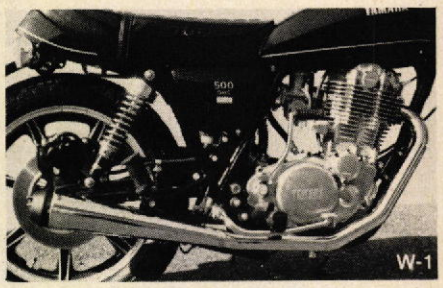

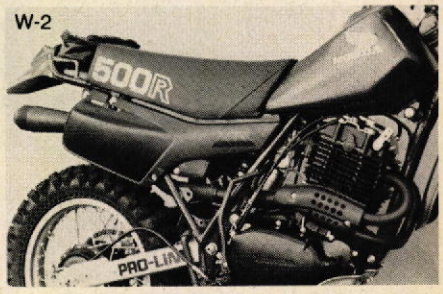

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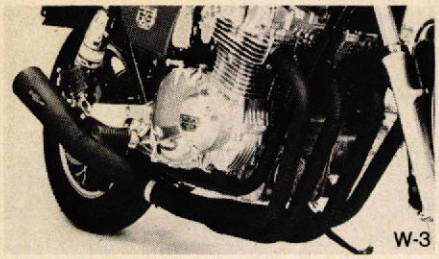
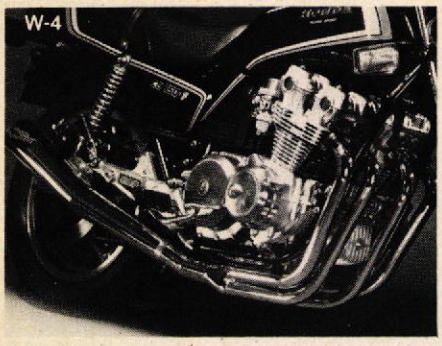

W-3


W-4

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(213) 780-0754
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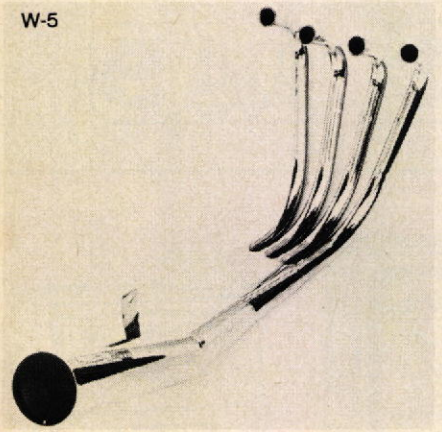
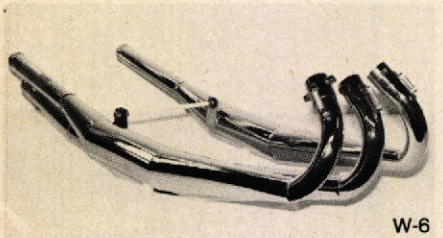
Street four-stroke exhaust systems to fit a wide selection of today's more popular road-going machinery. Claimed improvements in power and economy, retention of centerstand, access to oil filter and good cornering clearance are some WPP features. In addition to the standard chrome or black finishes, Winning offers a special black chrome and an Astro Blast aluminized finish in a choice of white, black or gold (W-3). The Honda CB750F system lists for $196 in Kal Gard black and $220 in chrome (W-4).


W-5


W-6

BILL WIRGES INC.
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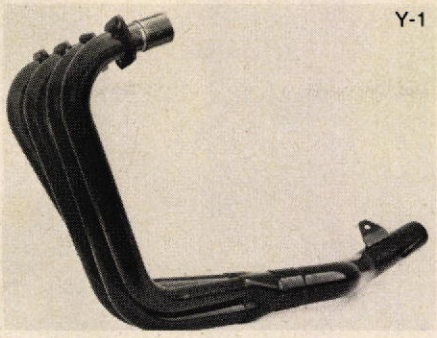
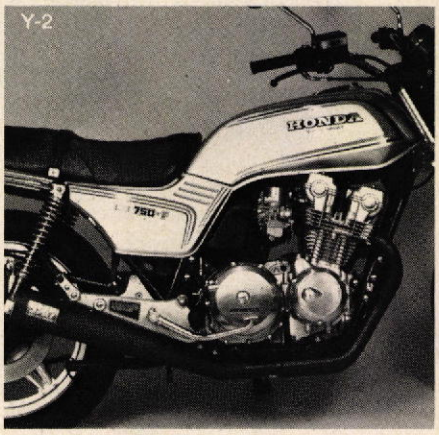
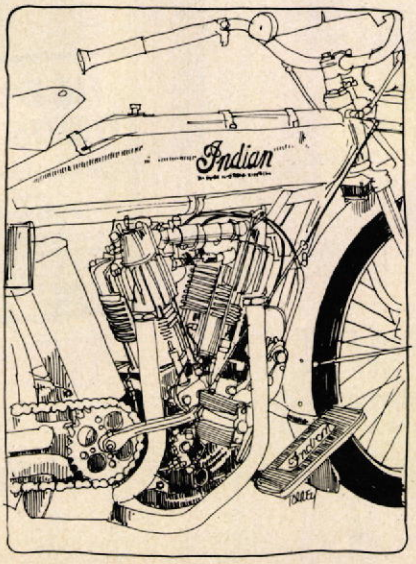

Y-1



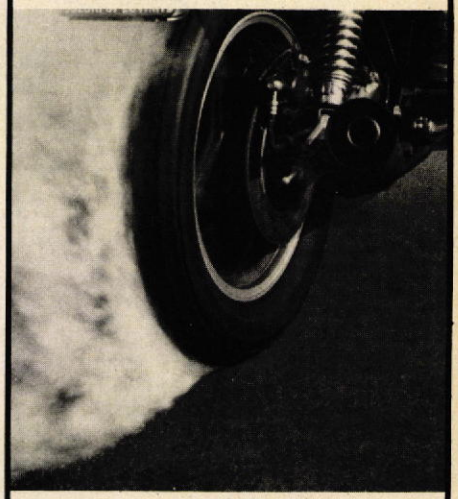
Y-2

YOSHIMURA R&D OF AMERICA INC.
4555 Carter Court
Chino, California 91710
(714) 628-4722
Catalog $3

Street competition exhaust systems for most models of Japanese four-cylinder bikes developed through racetrack and dyno research. The Kawasaki KZ550/750 system features a claimed increase in horsepower, improved cornering clearance and bolt-on installation. List price is around $190 for black finish and $205 for chrome plate (Y-1). The Honda CB750F/900F design includes the aforementioned features plus centerstand retention and access to oil filter and drain plug (Y-2). Price is $220 in black and $252 in chrome.



THE BIG DIFFERENCE



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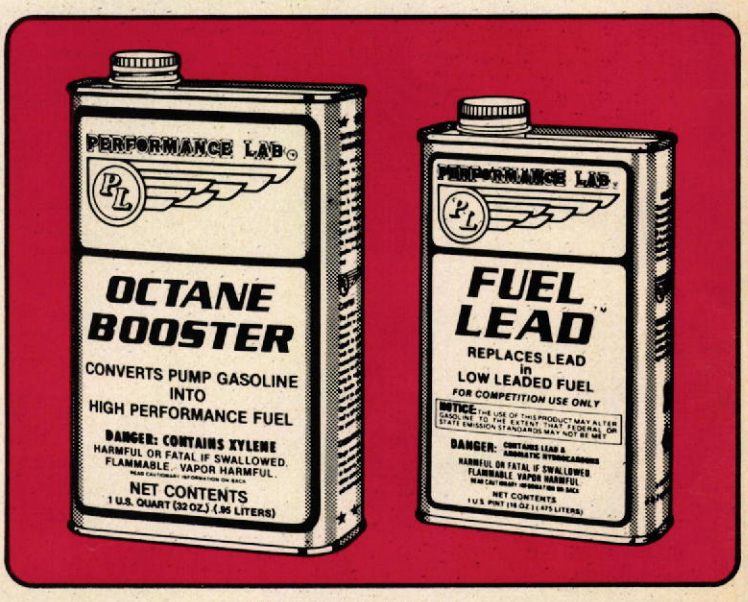

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EDITED BY JEFF BURTT

Sun Reigns At Carlsbad

U.S.A. two, Europe seven at the USGP

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• Last year, when Honda's Chuck Sun came to the 1980 Carlsbad United States Grand Prix, he was on top of America's 500cc motocross Nationals. As the leader in that series, he automatically became the favorite in the minds of U.S. fans to end the seven-year European domination of the USGP. It was strange, then, to hear his words in the pits before that event: "I don't think I'll do too well here, I'm not really ready to go for it at this race," was what he said.

Sun's assessment of his own chances—and he is known for his honesty, his detachment from ego—was correct. Whether it was a desire to remain healthy and not take risks, because the rest of the 500 Nats were upcoming (he won the 1980 series convincingly); whether it was the Carlsbad mystique—no American had ever won the race—that spooked him, is impossible to tell. What transpired was that Marty Moates, a privateer with a perfect 1-1 day, entered the annals of motocross history as the first U.S. rider to win on home soil at Carlsbad.

© 1981 MICHAEL GOING

This year, the situation was different. Sun, the reigning National champion, had faltered in the early rounds and came to the 1981 Carlsbad USGP in third place on that series' leader board. Carlsbad provides a one-week respite for the National riders and Sun, for one, had looked forward to the break. "I feel pretty good today," he said on Carlsbad Sunday. "I think I'm ready to give this race my best effort." His words augured ill for the rest of the GP field.

And he was right. Though Yamaha's Broc

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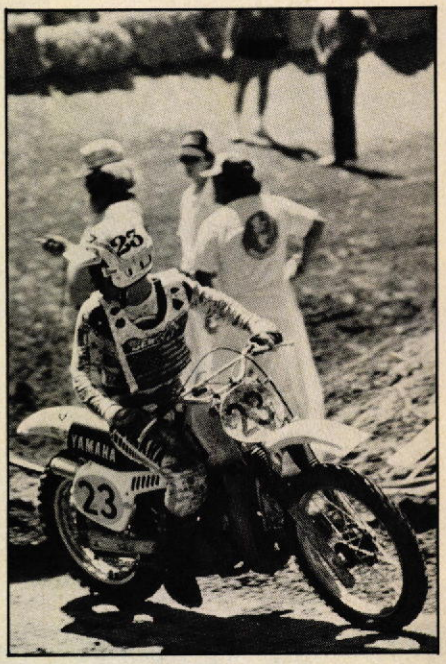
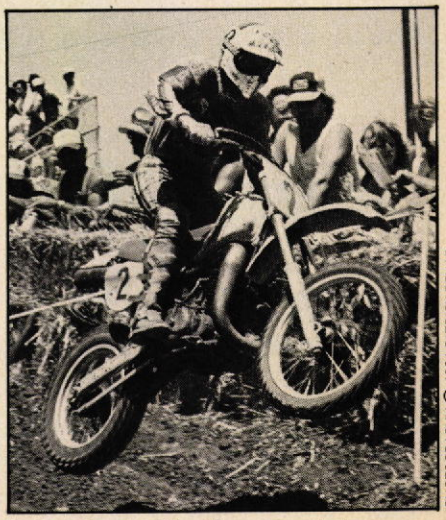
Glover was styling in moto One

But the GP day belonged to Sun.



Don't look back, Broc

Moto Two is still coming up.



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Lackey flew his Suzuki to second place

His third marque in four years.

Glover won the first heat—Sun was fifth—he was fading at the end of the moto and was never a factor in the second go-round. Brad Lackey, Graham Noyce and Hakan Carlqvist—three stalwarts of the European tour—likewise had trouble putting together consistent moto finishes, although they ended the day in second, third and fourth places, respectively. Gerrit Wolsink—who had won at Carlsbad an incredible five times, including four straight from 1974–77—finished in fifth place with a 4-7 day. It was his last race at Carlsbad; Wolsink intends to retire at the end of the GP season and devote his energy full-time to a job as a representative for Bel-Ray, one of the sponsors at Carlsbad.

In the absence of consistent competition, it was left to Sun to race the second moto the way he likes to: smoothly, tenaciously and in control. He gated sixth at the start, worked his way up to third at the halfway mark, blew by the current World Champion Andre Malherbe with four laps to go and held first place to the end.

His 5-1 in motos was anything but artistic, but in Victory Circle an exuberant Chuck wasn't displeased. The USGP had provided him with a boost for the rest of the Nationals, and he said "I kept calm and kept pressing, that's why I won." Hello world, look out America. —*Jeff Burtt*

Mike Bell and his Yamaha put on a slide show for the crowd

But Too Tall's 8-5 in motos was only good for eighth place.

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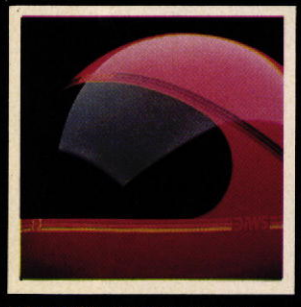

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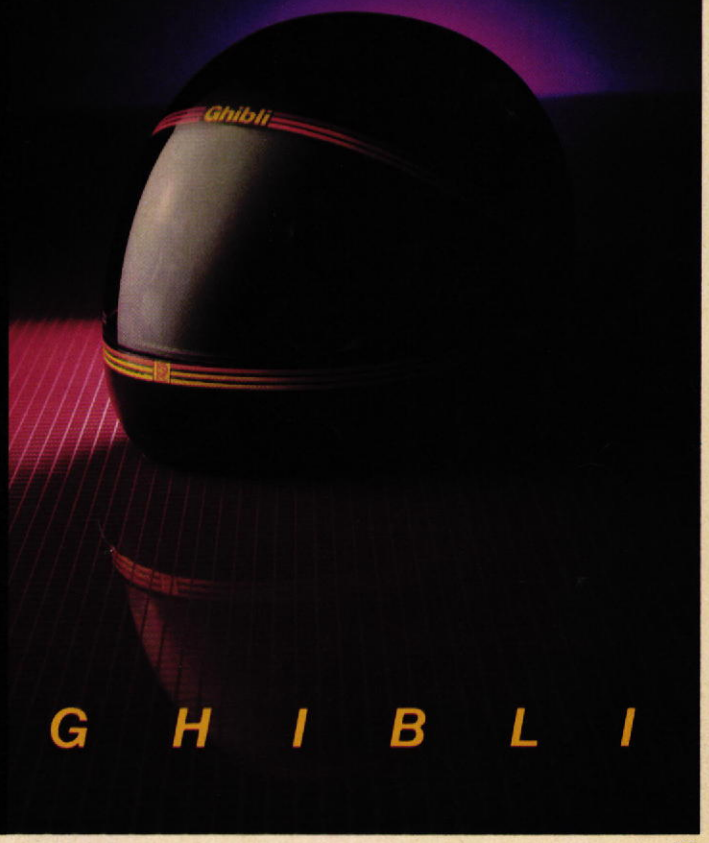

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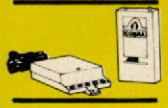

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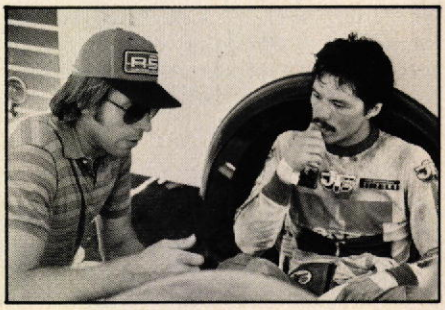

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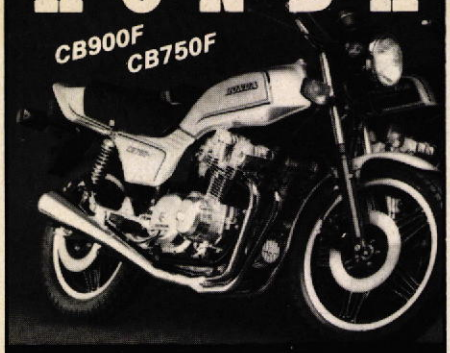

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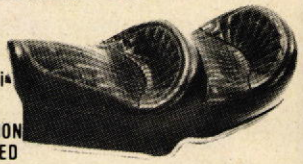

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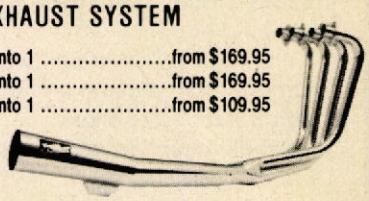

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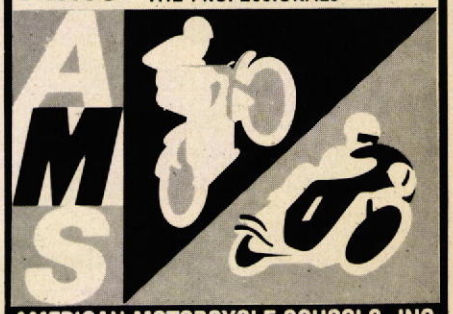

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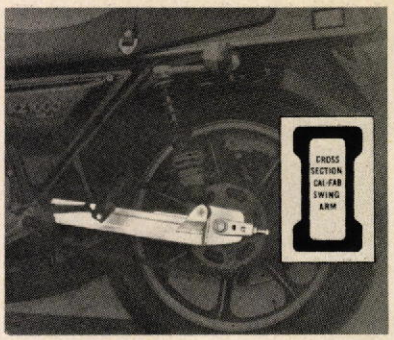

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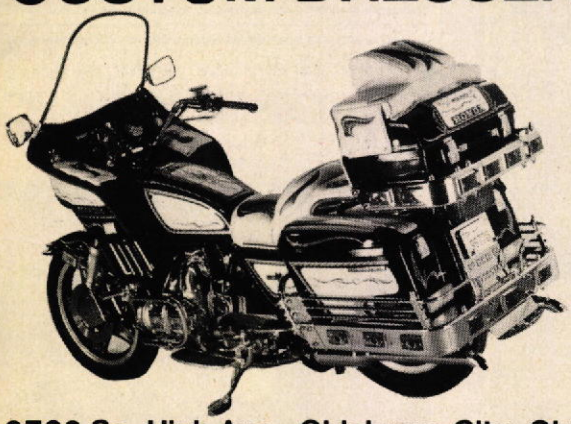

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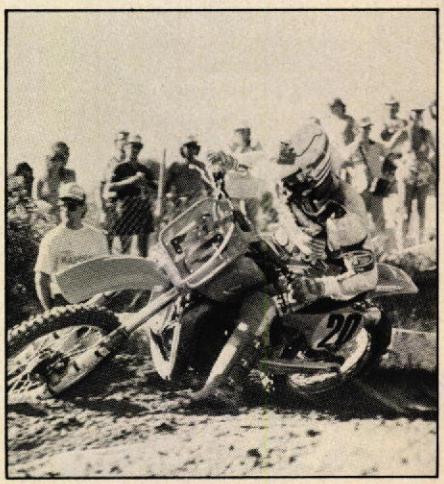

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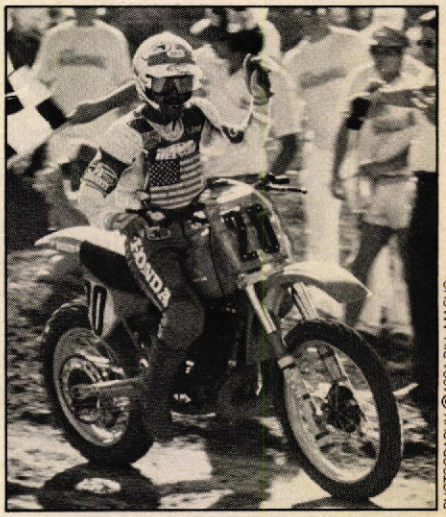

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It couldn't happen to a nicer guy

Sun rises to the occasion.

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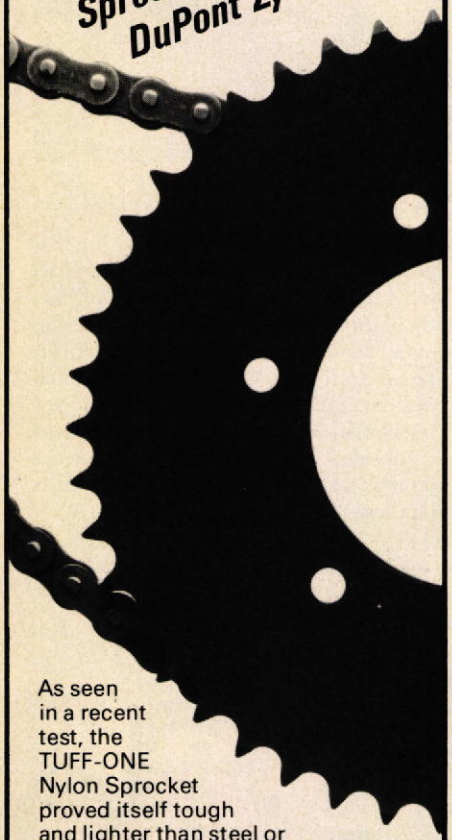

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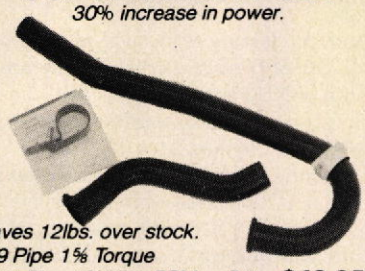

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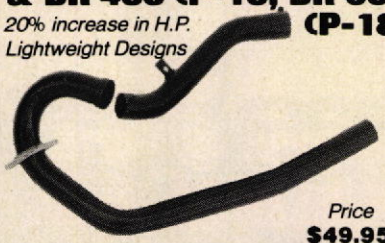

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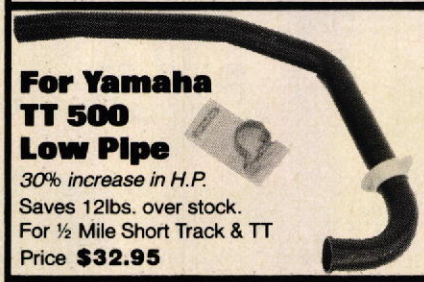

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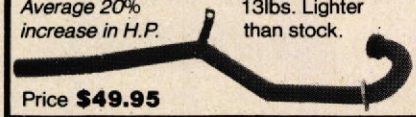

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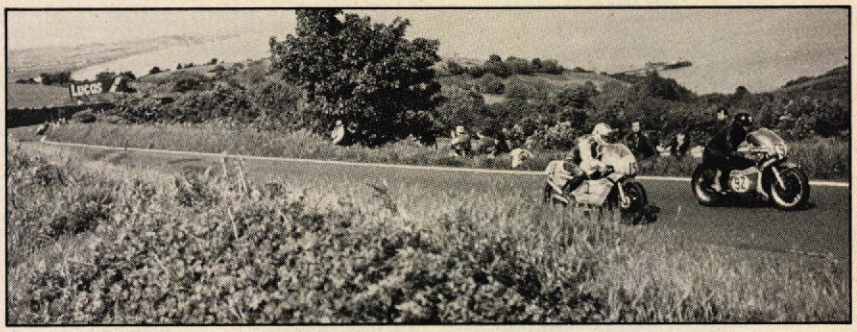
Winners & Losers

Singleton's Isle of Man

Not a bit like Daytona.



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Racing the Isle of Man's twisties is torturous and treacherous

But it sure is beautiful.

• Late this Spring, Dale Singleton was preparing for a six-lap race, one that would take him 26.5 miles *farther* than his winning ride at last March's Daytona 200-miler. On June 12, Singleton would compete in the Isle of Man Classic TT, his first-ever race on the demanding and dangerous 37.75-mile Mountain Circuit. The day before his ride, he climbed into a car lent to him by the ACU—the organizing body of British moto-sport—for a final look at the track. This interview was conducted as he drove.

"This is only my thirteenth time around the Island—hope you're not superstitious," he said as he drove away from the remote farmhouse that served as his base of operations, more than 15 miles from the factory teams who use the capitol city of Douglas as their headquarters. With only 13 laps under his belt, the obvious first question was how he thought he'd do in the race.

"I don't expect to win, for sure, and to be honest, this place scares the hell out of me," he said. "It's really a dangerous circuit, and you can't argue about that. I spent my practice time learning where to go slow—unlike a lot of riders who seem to want to learn how to go quickly. For me, the dangerous parts of the track are the ones I need to know—and that's where I'll be taking it easy. It's not like a GP track that you can memorize in a few laps. People like Mick Grant have been racing here since before I knew how to cross the street on my own, so I can't compete with them on those terms."

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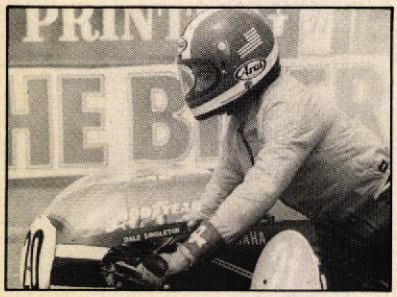
The road from Singleton's base swung out onto the raceway near Ballaugh Bridge, 17 miles from the start-line and a favorite spot for spectators who gather to watch riders get airborne over the humpback bridge that spans a small stream. A fast rider will have covered those 17 miles in just nine minutes, leaving himself only 11 minutes to traverse the remaining 20.75 miles—20 minutes per lap is a winning pace for the six-lap TT event.

Just past the bridge, and up through Ramsey, the road stretched out and a smile appeared on Singleton's face. "This is my favorite part, I like this section," he said. "I came over here after the Match Races in April and, would you believe it?, there was snow over this entire area. I had to drive between deep banks of the stuff." A sign read "Mountain Mile" as Singleton stepped on the gas and the car surged forward. "From here down to the start-line I know I can make up the time I lost on the slow sections," he said. "I can see so far and the turns are really fast. The first 15 miles or so you have to slow down because most of the turns are blind."

Singleton headed downhill on the fastest section of the course, from Kate's Cot-



Singleton, ready to TT-it at Iom

They make you wear a rookie jacket.

tage along the straightaway to Creg-ny-Baa, a tight right-hander that slows the bikes from 170 mph to 20 mph before they rocket downhill again toward Brandish. Singleton waved to the fans drinking beer outside the Creg Bar, and the ever-present police officer—there to slow down would-be spectator heroes—eyeballed him as the tires screeched around the curve. The start-line grandstands soon flashed past and we continued our way back to Singleton's base camp and our entry point to the circuit.

"This is a fun place to be; real low-key, low-pressure," he said. "For years I resisted coming to the TT because of the bad reputation it had in the States. But as I raced more and more street courses in Europe, and as more and more good riders asked why I wouldn't race here, I figured it was time I came over and had a look for myself. I'm glad I did. I reckon I can really relax here and enjoy the race."

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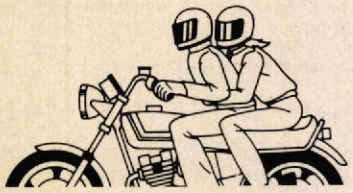

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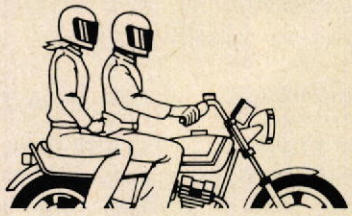

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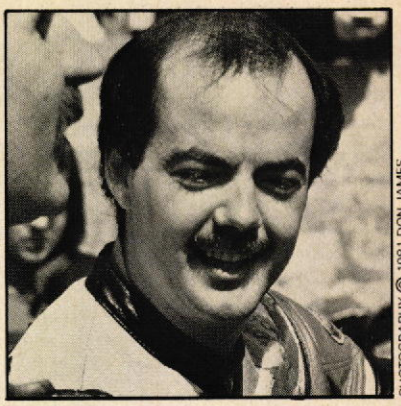


PHOTOGRAPHY © 1981 DON JAMES

Singleton was happy to be on the island

24th ain't too shabby for a rookie.

Singleton's last-look lap by car took just over an hour. (In a race, a top-ten rider would have covered *three* laps in the same time.) Did Singleton feel he had done enough practice laps? "Look," he said, "after so many laps it all gets confused. I can't tell you any of the names of the corners, except maybe three or four, but that's not important. I know where to go fast and where to go slow—*that's* the important thing."

The race for the Classic TT Trophy—34 inches tall, silver, insured for more than $800,000—was won by Graeme Crosby on a 997cc Yoshimura Suzuki four-stroke. Crosby will keep the coveted trophy for one year and then return it to the ACU before IoM 1982. For Dale Singleton, the race was extra practice for the '82 event. All went smoothly until an unexpected pit stop to adjust a slack chain added two minutes to his time. He finished the event in 24th place—with an average speed of 93.27 mph for just over two hours, 25 minutes of racing, it was a creditable first-time effort. "I'll be back next year for another try, if it doesn't interfere with my other commitments," he said. "This year was a good trial, next year who knows?" —*Don James*

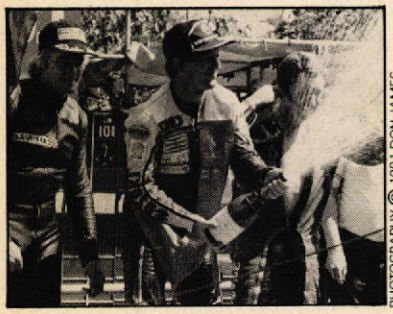
Kiwi Dennis Ireland chats with Dale

Low-key and low-pressure.

Pit Bits

• The first race of the **Isle of Man** fortnight, the prestigious Formula One TT, started with a **whimper** that grew to a bang and the full effect of protest and counter-protest repercussions have yet to be completely felt. The whimper came from Graeme Crosby's 997cc Yoshimura-Suzuki which, five minutes before its scheduled start time, was pulled **off the grid** to change the rear wheel sprocket. Crosby started last and was assessed a six-minute penalty, the time difference between his scheduled and actual start times. In six laps he moved through the pack to finish third behind Honda's Ron Haslam and Joey Dunlop and, following the ceremony celebrating Haslam's "win," Crosby protested the results. Two hours later, the FIM Jury issued the **bang**—displacing Haslam and Dunlop and elevating Crosby to first place with a statement that the start-time penalty shouldn't have been assessed. Honda cried **foul** and threatened to boycott the rest of the IoM; the matter won't be resolved until an FIM meeting in October.

• Two laps of the **Senior** TT, the second major race on the IoM docket, were run before fog shrouded the Mountain Mile section at the top of the island. The two helicopter pilots, there to spirit away the injured to a M*A*S*H-type hospital facility, reported that they couldn't **guarantee** a safe landing on the mountain after the mist closed in, so the race was rescheduled for the next day. Mick Grant, on an RG500 Suzuki, was the winner of the re-start; it was his **sixth** TT victory.



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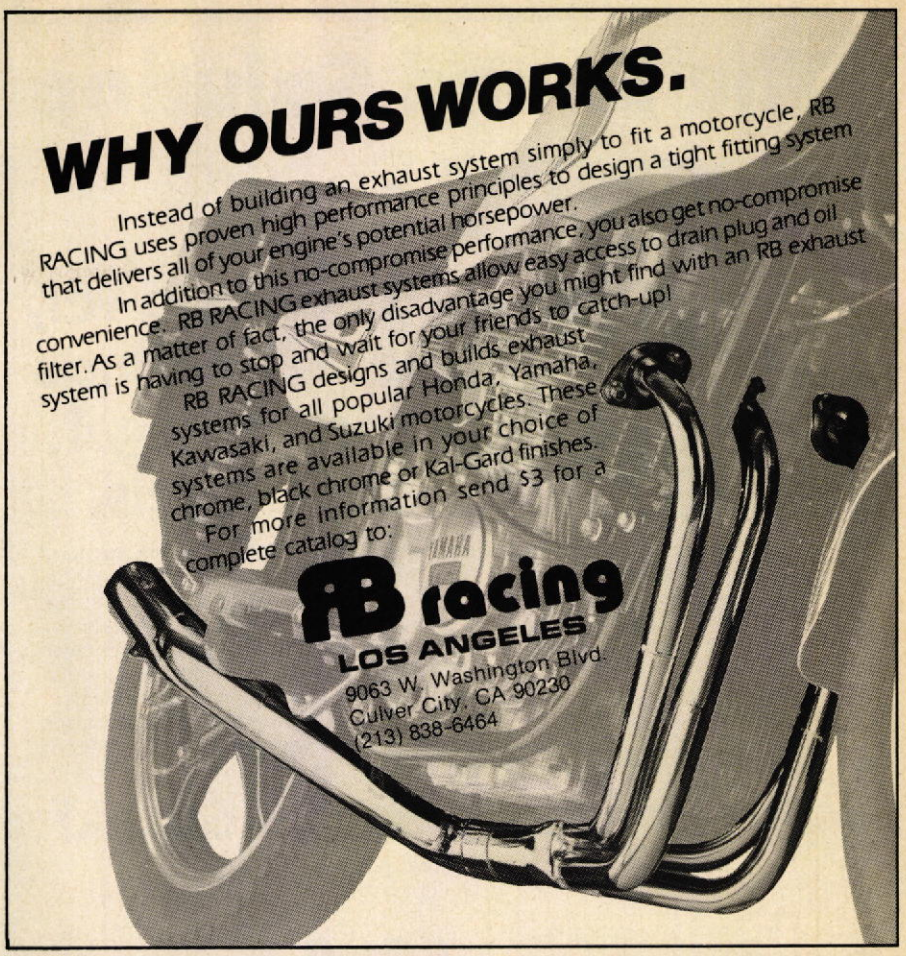
Crosby loves Classic champagne

Take that, Honda.

• After at first considering a **boycott** in protest of the FIM's Formula One TT decision, the Honda Britain Racing Team decided to continue competition under duress. But, as an indication of their feelings, the team proceeded to carry out the most **infamous** performance in the history of TT racing on the island. They showed up for the start of the Classic TT, the most important race in the series, with

Continued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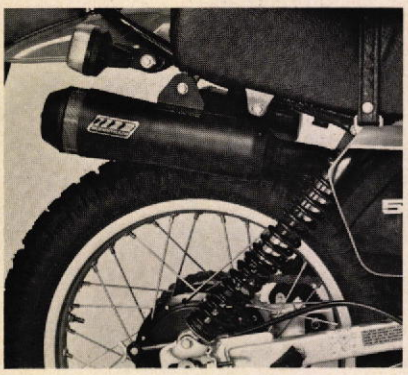

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all-black machines and all-black leathers, sporting no Honda identification whatsoever. Gerald Davison, the team manager, explained "As some indication of our dissatisfaction and that of our riders we have withdrawn our official identity from our motorcycles and personnel. Therefore, our machines will be raced without our colors and our personnel will carry no team badges. Effectively, this means there are no official Honda entries in (the Classic TT). We hope in this way to express our disgust at events without interfering with the racing."

• Press **people** at the Classic TT report that the tradition-conscious British were indeed **disgusted** at events—in this case events staged by Honda. But with typical humor, a petition was circulated—on Suzuki GB letterhead—to be signed by every rider **in case** Honda won the race. It read: "In the light of a Honda win we wish to protest on the following grounds: a.) Being beaten by Honda didn't figure in our pre-race plans; b.) we consider Honda having their machines ready to race prior to the commencement of racing to be an unfair advantage; c.) we need the prize money more than they do—our riders were relying on it to get home; d.) their trucks look better than ours; e.) they have British riders which is not in the spirit of British competition; and f.) they outsell all other Japanese manufacturers combined in the U.K." Suzuki GB, **understandably,** denied all knowledge of, or association with, the petition. But some of its team members seemed pleased.

• The petition, fortunately, wasn't needed. Graeme **Crosby** and Mick **Grant**—yes, Suzuki GB and yes, Yoshimura-Suzuki mounted—went one-two at the Classic TT, rubbing salt in Honda's wounds. After that, the weekend closed uneventfully.

• FIM Update Dept.: The **Canadian** 500cc motocross Grand Prix has been reinstated after a three-year respite. Next year's date is June 27.

• Add FIM: Beginning in 1983, the 350cc **roadrace** class will cease to exist, and the 50cc tiddler class will up its displacement ante to 80cc.

• American **speedway** racing stars Bruce Penhall and Bobby Schwartz scored an **upset** victory at the World Speedway Pairs Championships in Poland. Penhall scored an **almost-perfect** 14 points with four wins and a second for his five heats; Schwartz added nine points of his own. The U.S. entry finished with a one-point lead over runner-up New Zealand, and it was the first time since before World War II that any American riders had earned a World Speedway title.

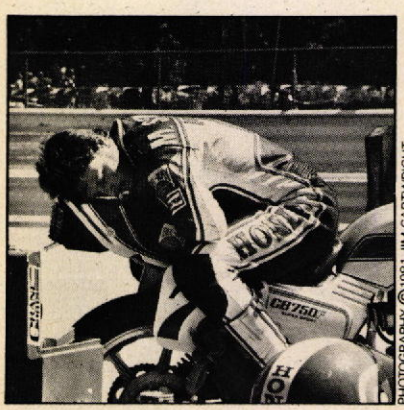
• Oops Dept.: On page 80 of the August issue of *CG*, an incorrect photo credit was

given. The two black-and-white shots of an uncrated Virago motor bound for Roberts/Lawwill Racing were taken by **Dale Brown** and supplied courtesy of *Cycle News West*. Apologies to both.

• Jay **Springsteen,** H-D's Grand National phenom, had what could only be described as a disastrous weekend this summer. First, he **unloaded** on the initial lap of the Santa Fe TT National, breaking his collarbone in three places along with a bone in his right wrist. Plus assorted bumps and bruises. He will be out of action for one month, and could effectively be out of this year's title chase. Then, upon returning to his Michigan home, he discovered that his neighbor's house had **burned** to the ground and severely damaged his own abode as well. The only positive note came with the news that Springer had—by one point—beaten Steve Eklund to the top of the halfway list in the Winston Pro standings. His midpoint bonus, paid by Winston, was **$10,000.** Enough to replace the porch, maybe?

• **Finally,** AMA Rookie Expert Jim Filice had his own problems on the Grand National tour. Seems the Elkhart Lake, Wisconsin roadrace (Sunday) and the Louisville, Kentucky half-mile (Saturday) were scheduled too close together for most riders to compete at both. Not Filice, or so he thought. Roberts/Lawwill Racing flew **young Jim** to Louisville on Saturday afternoon following roadrace qualifying at Elkhart. The plan was for him to flattrack Louisville and board a plane back to Elkhart in time (pant, pant) for Sunday's roadrace. Well, the Louisville halfer was **rained out**—and so was the Louisville airport. So what did young Jim do? Stayed in Kentucky and went out on Sunday at the re-start of the Louisville round and won the first Grand National race of his budding career, that's all.

• Filice's **heroics** went unnoticed at Elkhart, at least by Mike Spencer who finished second in both the Superbike and Formula One events. Shown here catching some Z's, Spencer gets our award for best **pit stop** inaction of the year. •



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LETTERS *Turbo tout, Double-Nickeling, and the Editorial We.*

HONDALUST

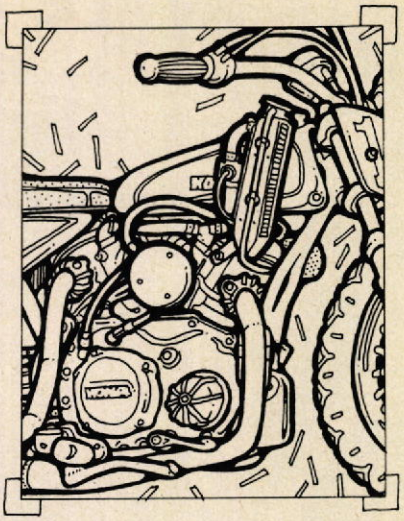
After reading your January '81 article on the CX500 Turbo I felt obligated to write you. I just read the article for the fourth or fifth time, and it probably won't be the last. You see, I'm stunningly in love with this machine. I've never seen it three-dimensionally, but I've waited and dreamed for a bike like this midsize powerhouse to hit the U.S. market. If you have any strings with the Honda people, please tell them for me that they don't have a hair on their you-know-what if they don't get the CX500 Turbo into production sometime in the very near future.

John L. Marcus
Spring Lake, Michigan

We assume you've salivated all over this month's cover and read pages 39–52 twice. Good. The bike should be at your dealer—ed.

SECA SAGES

Hey bozos, what's with your comparing an apple to a bunch of onions? The 750 Seca (*CG*, June '81) is a nice, clean *shaft*-drive (worth the extra 200 bucks to many enthusiasts), and is flat-out fast despite it. However, since you guys are chained to your chains and love to race, why not get a TZ750 and really find out about quick responses? I think you guys all need glasses!



R. Wellman
Austin, Texas

Your test reports are a study in psychoanalysis: "glitzy," "Bo Derek," "overripe." Baloney—a cycle has a *look*, period. The 550 and 750 Secas (*CG*, May and June '81) "look" no different than a Honda. The looks of any bike can wear off after the newness, but so can that of a dishwasher. With all that Disneyland language about the Secas you neglected the numerous practical features of the bikes that help us "grocery store runners" select a machine to ride.

Amidst all the glamorspeak you did say that the Secas—at over 50 mpg—would be great fun running up to the grocery, which is precisely where a good deal of riding is done these days in addition to where, evidently, most of you folk ride your bikes most of the time (when you're not devoting time to the glossary section of a text on Freud)—Disneyland. I ride a Honda 400—sort of like a June Allyson model, right?

Alan Roush
Lakeside, Arizona

More like a Dick Powell. Say, didn't we pass your Honda in the produce aisle last weekend?—ed.

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HONDA HERALDRY

Just got to the back of your June '81 book today and saw the Letters to the Editor. Please inform letter-writer Kevin Wright of St. Louis that Honda has won 18 (not 16) manufacturer championships in GP racing, and 140 (not 137) individual GP races. Honda riders have won 16 rider championships.

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SPEED THRILLS

As a subscriber to CYCLE GUIDE and the owner of a 1972 Triumph 650 Tiger I would be interested to know your publication's stand on the 55-mph national speed limit. Reagan promised to abolish it while he was campaigning, but *Consumer Reports* says the issue has stagnated.

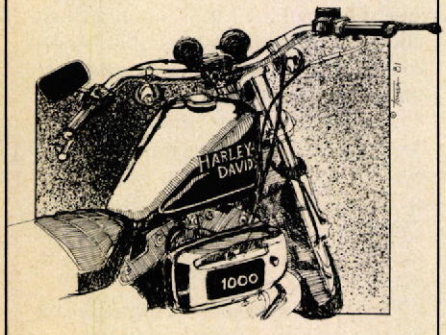
Frank Collin
Pontiac, Illinois

A perusal of our February, May and July '81 Editorials should answer your question—ed.

THE RATINGS GAME

After 13-plus years in the high-performance tire business I have developed an unfortunate tendency to replace adjectives with tire rating symbols. To make matters worse, my lust for cars has gone South with the emergence of the new socially-conscious transportation appliances from Detroit. The same thing happened to all the monthly car books. What once were double-edged journals have become flaccid advertising tools. The bike books? Populated by techno-mavens who forget the sheer fun you can have on a two-wheeler. But not you guys: CYCLE GUIDE is V-rated.

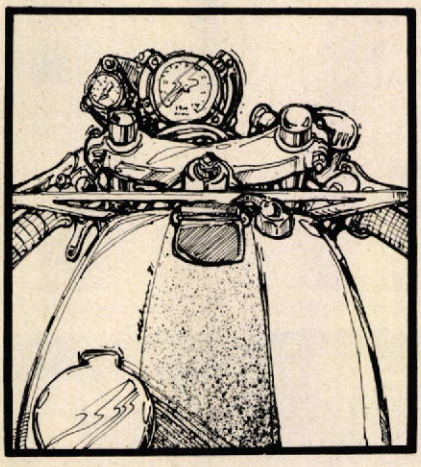
Chuck Dressing
Verona, Pennsylvania



SEX READER, EX-READER?

I am a minor (16 years old) and have subscribed to your magazine for almost a year. I feel terribly betrayed by . . . but wait, let me start at the beginning.

I was reading my June issue—great idea to compare the 750s, by the way—when I strayed to the rear pages and saw a letter from Stephen Byarlay talking about the ads that you print. "Well," I said to myself, "think of what I've been missing!" I raced to my pile of old issues and scrabbled through it furiously until, at last, I found my April '81 issue. Its provocative gold cover leered up at me and, hands trembling, I flipped to pages 24, 36 and 46.



This is where my feeling of betrayal started—there were no naked beauties cavorting amongst the ad slogans. I mean, *really*! So I've decided to subscribe to *National Geographic*, and the hell with you guys. At least *National Geographic* delivers. And my grandmother won't be thinking "Nekkid wimmin"—instead, she'll be thinking "Ahh, at long last the boy's getting some cultural enrichment pounded through his stupid helmet." Little will she know . . . .

Rob Armstrong
Christiansted, St. Croix
U.S. Virgin Islands

HANDS OFF

I've been a rider for about 12 years and a CYCLE GUIDE reader for less than one. No excuses, it just took me a while to see the light. I have a question about a photo in your June '81 issue. On page 31, the first page of the 750 Showdown, I'm curious to know why all four riders have their left hand off the handlebar. It's a very good article and photo, but my only question is why experienced, if not professional, riders don't use both hands. I've tried it, it isn't comfortable and doesn't help much in fighting the wind. Please let me in on a secret of the pros.

Timothy Senty
St. Paul, Minnesota

Guess the CG staff's racy, imitation Springsteen-style flattrack tuck didn't fool you—ed.

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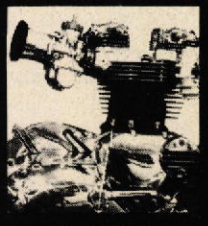

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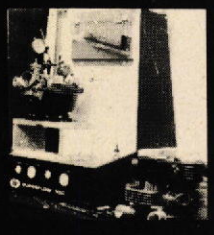

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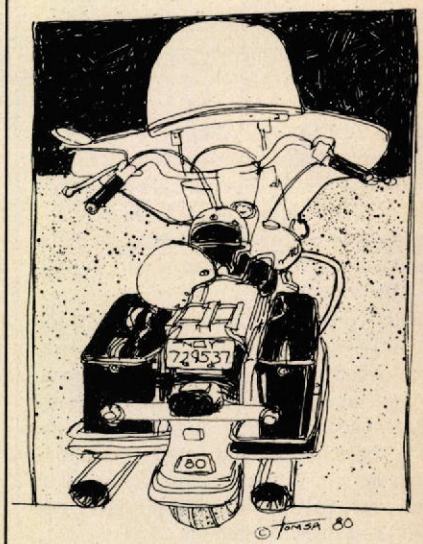
LETTERS

SNIDESTAND

You technocrats ride and write about the new motorcycles and comment on points that the ordinary Joe Six-pack would never notice. But you fail to see some of the obvious design deficiencies. For example, my Honda's sidestand will not allow me to park on even a slight downgrade without it folding, and it holds the motorcycle so nearly upright that it further limits where I can park. Just yesterday I lost a rear turnsignal to a tumble caused by this dumb design. Oh, for a Harley locking-and-leaning sidestand. Oh, for a technocrat who can see the obvious.

Bob Strickland
Citrus Heights, California

Oh, to know which model Honda you happen to own—ed.



CHiPPING AWAY

Larry Works' Editorial column in your July '81 issue concerning proposals to raise the speed limit to 70 mph for fuel-efficient vehicles makes sense, but I question its effectiveness in urban areas unless the left lane is reserved for their use. Anyone who rides or drives within the Greater Los Angeles Freeway District is aware that the traffic flow in the two fastest lanes moves at an average 60–65 mph. This is a safe speed until an obstruction occurs; most often it's a driver who insists on traveling 55 mph.

These self-righteous obstructionists directly cost lives. There are plenty of signs saying "Slower Traffic Keep Right," but I have yet to ever see it enforced. The CHP seems content in dipping into the traffic pool for speeders, slowing and obstructing traffic themselves as they make their arrest, instead

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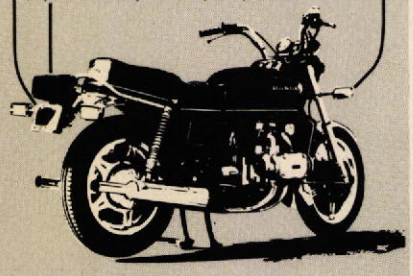
The Dualock Dualarm is a loudmouth when you're not there!
Deter thieves with this weatherproof self-contained alarm. A tough ABS housing protects the solid state adjustable sensor sounding off through dual horns-after 45 seconds of 110db noise, the alarm automatically rearms. With interlock switches behind the chrome-plated steel cover and impossible-to-remove mounting hardware, the Dualarm is tamperproof. Only $49.95.

The Dualock Multi-Brite Taillight Coupler lights up your life!
Improve visibility and safety with this simply wired taillight coupler (only 7 color-coded wires!). Turns rear signals into running and brake lights, without interfering with turn-signal functioning. The solid state Multi-Brite-a tiny sealed package-a big improvement in your safety. Only $24.95.



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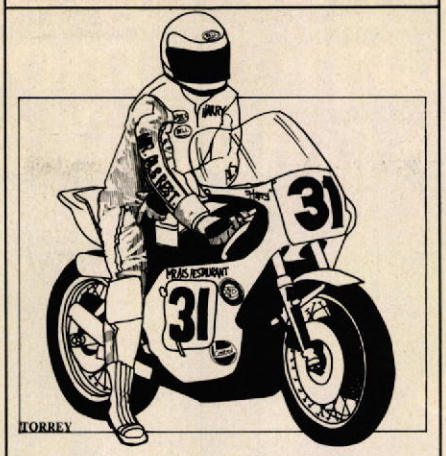
LETTERS



of participating in traffic *management* by waving obstructors into a slower lane where they belong.

I have questioned representatives of the Highway Patrol about this issue and was told that moving slower traffic into another lane was at the discretion of the individual officer. Clearly then, patrol officers have more official incentives to issue citations than perform responsible traffic management. It seems just as apparent that these problems will not be resolved, and that if, as Mr. Works envisions, we have higher speeds, Ollie Oblivious will still be hanging out in the wrong lane.

Mike Owen
Santa Barbara, California

DISCO DRUBBING

I had been hoping that someone would reply to the disco freak Zuckowski's letter (*CG*, April '81) which berated some readers for calling the factory "customs" Disco Bikes. Readers Willson and Engle did this (*CG*, July '81), but they didn't explain why these "custom" atrocities are dubbed Disco Bikes.

To put it simply, the tie-in with disco is based upon the fact that disco denizens are usually overdressed and pretentious, relying on image alone to make themselves presentable to the opposite sex. The Customs, LTDs, Specials and Low Slingers are not only overdressed and pretentious, but impractical as well. Furthermore, I suspect that most disco nuts can't dance any better than rockers can, they're just in there to try and make it with the gold diggers.

Steve Wassenich
Dayton, Ohio

SHORT AND SWEET

Regarding your replies in the "Letters" column: who is "—*ed.*"?

Bruce Liebert
Ruston, Louisiana

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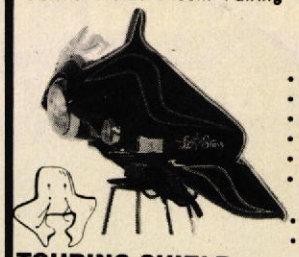

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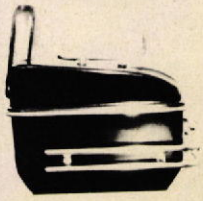

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Honda put together the first dual purpose motorcycle the magazines couldn't take apart.

Sometimes it seems like the motorcycle magazines have something against dual purpose motorcycles.

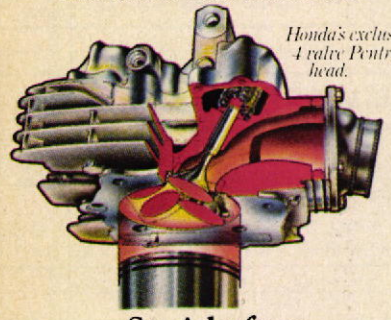
Listen to *Cycle World* for example: "Normally dual purpose machines are compromises between dirt and street designs... the result is a motorcycle that doesn't do anything well."

So it's no surprise that when the motorcycle press got ahold of last year's Honda XL500S, they gave it the most grueling test rides imaginable.

Then they told the world exactly what they thought of it.

The XL500S is the best dual purpose motorcycle you can buy.

The results were unanimous.



Honda's exclusive 4 valve Pentroof™ head.

Straight from the horse's mouth.

Cycle, the most popular magazine on two wheels, began with an august statement. "The big Honda thumper is unequivocally the best dual-purpose bike available today."

Cycle World named it one of the Year's Ten Best Motorcycles, but didn't stop there. "... it's more than just the best dual purpose bike, it's also one of the best small street bikes available.", they said.

Cycle Guide was just as complimentary. "It's the Cadillac of the class."

Motorcyclist named it "The Best Buy for 1980" out of a competitive field that wasn't merely dual purpose machines, but every motorcycle offered for sale in 1980.

And *Dirt Bike,* a magazine well-known for its thrash-it-within-an-inch-of-its-life riding style, simply said "Without a doubt, the Honda XL500S is the best big, four-stroke dual-purpose motorcycle built today."

There's only one problem with these great reviews. They're for the 1980 XL500S.

What are the magazines going to do this year?

Because this year's XL500S is even better than last year's.

Thumper and lightning.

The heart of the XL500S is what riders and reviewers affectionately call a thumper.

A big, single cylinder four-stroke with gobs of power and mountains of torque. Honda has taken the basic idea and refined it into one of the most comfortable and versatile powerplants on earth. Or off.

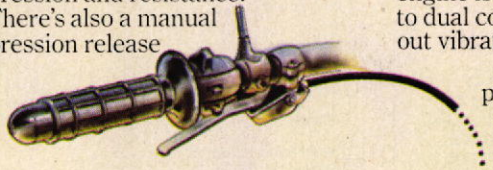
Honda's technologically advanced Pentroof™ combustion chamber uses four valves instead of the more conventional two.

And delivers better breathing at high rpm's without valve float.

By using two exhaust ports, the exhaust pipes can be tucked in closer to the frame while still improving exhaust flow efficiency.

To make it easier to start than an ordinary dual purpose machine, the XL500S employs an automatic compression release. As you kick down on the starter, the exhaust valves open slightly to reduce engine compression and resistance.

There's also a manual compression release



mounted on the handlebars for bump starting on downhills.

And to make it easier to maintain, the XL500S uses a high performance capacitor discharge ignition. No points. No maintenance. Ever.

The dirty truth.

The XL500S heads for the hills with all the equipment you need for Mother Nature.

Like suspension that would look at home on an enduro course. Leading axle forks with 8 inches of travel. Gas-charged lay-down shocks with 7 inches of travel. Both with new and improved damping rates for 1981.

The swing arm has been improved, too. This year, it's a box section design that pivots on needle bearings.

Even the small touches are there. Like the enduro style chain guide and chain adjusters. The USDA-approved spark arrestor. Or the new extra wide front fender. Everything you need to leave civilization behind.

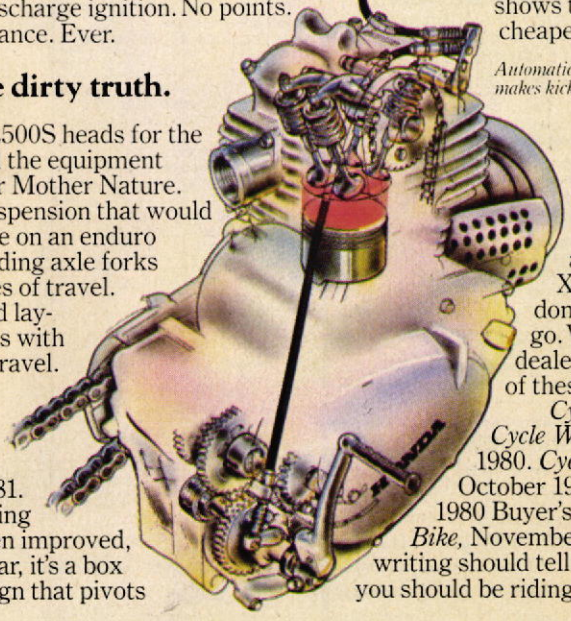
Meanwhile, back in town.

The XL500S, however, is anything but half-hearted on the street.

For all its power and torque, its engine is surprisingly smooth. Thanks to dual counter-balancers that dampen out vibration.

Its Honda-designed dual purpose tires hug the pavement, handle with predictability and ride smooth, even in the fast lane.

The XL500S comes complete with street legal lighting, refreshingly high gas mileage and a price tag that clearly shows that one bike is cheaper than two.



Automatic compression release makes kick starting easier.

A suggested reading list.

If you want to know more about the XL500S, you don't have far to go. Visit a Honda dealer. Or pick up any of these fine magazines. *Cycle,* May 1980. *Cycle World,* October 1980. *Cycle Guide,* October 1980. *Motorcyclist,* 1980 Buyer's Guide. *Dirt Bike,* November 1980. Their writing should tell you exactly what you should be riding. The XL500S.

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